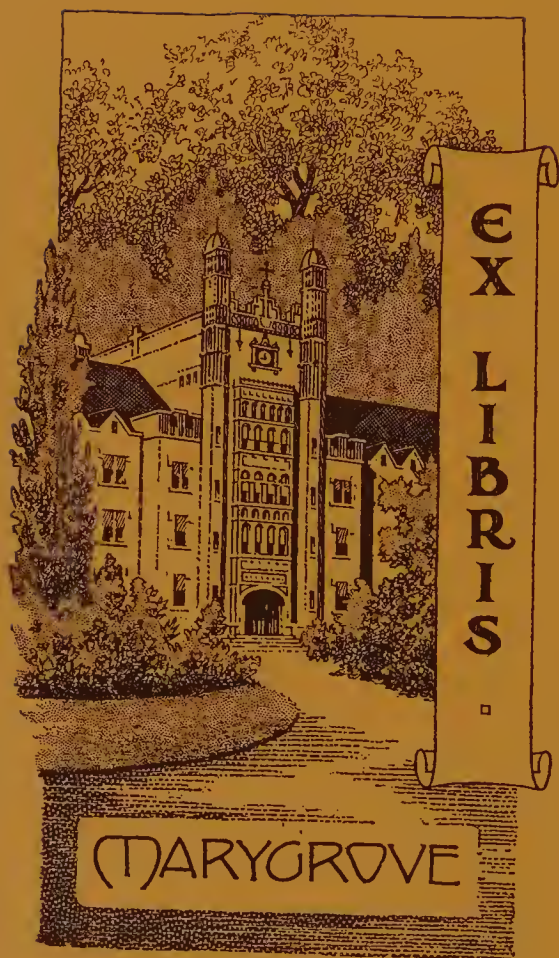


# NATIONAL SOCIETY FOR THE STUDY OF EDUCATION

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YEARBOOK PUBLICATIONS

PUBLIC SCHOOL PUBLISHING COMPANY  
BLOOMINGTON, ILLINOIS









NATIONAL SOCIETY FOR THE  
STUDY OF EDUCATION

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Yearbook Publications

VOLUME VIII  
YEARBOOKS XXI-XXII  
1922 to 1923

PUBLIC SCHOOL PUBLISHING COMPANY  
BLOOMINGTON, ILLINOIS

# SUMMARY OF YEARBOOKS XXI THROUGH XXII

## TWENTY-FIRST YEARBOOK, PARTS I AND II (1922)

### INTELLIGENCE TESTS AND THEIR USE

S. S. Colvin, Helen Davis, Bessie L. Gambrill, Henry W. Holmes, W. K. Layton,  
W. S. Miller, Rudolph Pintner, Agnes L. Rogers, H. O. Rugg,  
M. R. Trabue, E. L. Thorndike, and G. M. Whipple

Under the chairmanship of the late S. S. Colvin, this Committee of the Society produced this yearbook of 270 pages in the attempt to explain "in a clear and accurate manner the theory, nature, and practical use of intelligence tests." Its two parts are bound in one cover. Part I treats of 'general intelligence,' its nature, how it may be measured, how mental tests have developed, and their essential characteristics. Part II treats in considerable detail "the administrative uses of intelligence tests in various grades, beginning with the primary grade and ending with the college and university." In addition to a wide circulation among schoolmen, this yearbook has been extensively used for purposes of instruction in normal schools and colleges.

## TWENTY-SECOND YEARBOOK, PART I (1923)

### ENGLISH COMPOSITION: ITS AIMS, METHODS, AND MEASUREMENT Earl Hudelson

By means of questionnaires the author sought to discover from teachers of English what their actual aims and methods were with respect to composition. He next considered the means employed for determining the extent to which these aims were being attained and was led to devise and to standardize two scales for the measurement of English composition. His principal contention is that most composition scales test only how well the pupil can write upon that particular topic, not how well he can possibly write. For the latter purpose he proposes his Maximal Composition Ability Scale. To determine accurately from time to time the extent to which the pupils are exercising their real ability, he proposes another device known as the Typical Composition Ability Scale. Detailed instructions are given for the use of these two scales.

## TWENTY-SECOND YEARBOOK, PART II (1923)

### THE SOCIAL STUDIES IN THE ELEMENTARY AND SECONDARY SCHOOL

A. S. Barr, J. J. Coss, Henry Harap, R. W. Hatch, H. C. Hill, Ernest Horn,  
C. H. Judd, L. C. Marshall, F. M. McMurry, Earle Rugg, H. O. Rugg,  
Emma Scheweppe, Mabel Snedaker, and C. W. Washburne

This group of writers, under the direction of H. O. Rugg, has presented in this 324-page yearbook important and somewhat radical proposals concerning

the portion of the curriculum devoted to the social studies. Section I analyzes current practices, shows how social science curricula came to be what they are, and points out needed changes. Section II presents samples of reorganized courses in this field in several schools. Section III discusses the method by which such reorganizations of the curriculum should be carried on. Section IV is a critical appraisal of F. M. McMurry of the proposed reorganizations. This volume may be regarded as one of several fore-runners of the proposed year-books on the Technique of Curriculum-Making. It applies, obviously, primarily to the geographical and historical portions of the curriculum.





# THE TWENTY-FIRST YEARBOOK

OF THE

NATIONAL SOCIETY FOR THE STUDY  
OF EDUCATION

## INTELLIGENCE TESTS AND THEIR USE

### PART I

THE NATURE, HISTORY, AND GENERAL PRINCIPLES  
OF INTELLIGENCE TESTING

### PART II

THE ADMINISTRATIVE USE OF  
INTELLIGENCE TESTS

*Prepared by the Society's Committee and Edited by*

GUY MONTROSE WHIPPLE

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This Yearbook will be Discussed at the Chicago Meeting of the  
National Society, Saturday, February 25, and Tuesday,  
February 28, 1922. 8:00 p. m.

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PUBLIC SCHOOL PUBLISHING COMPANY  
BLOOMINGTON, ILLINOIS  
1923



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## EDITOR'S PREFACE

At the Atlantic City meeting in February, 1921, the Commission of the National Education Association on Co-ordination of Research Agencies, passed a resolution and appointed a committee to ask the National Society for the Study of Education to devote one of its *Yearbooks* to the discussion of intelligence tests. A similar action was taken at the same time by the National Association of Directors of Educational Research, and Messrs. B. R. Buckingham and George Melcher conveyed to the Executive Committee of this Society the attitude of the two Associations just mentioned. It so happened that at the same time the Executive Committee of this Society were considering a *Yearbook* dealing with intelligence testing, so that its decision to produce such a *Yearbook* represents the desires of all three associations. Professor Stephen S. Colvin was formally appointed chairman of a special Committee to solicit contributions and assemble the material for the 1922 *Yearbook*, with the understanding that emphasis should be laid upon group intelligence testing and particularly upon the administrative aspects of this important educational development. The present *Yearbook*, therefore, represents the labors of the Committee headed by Professor Colvin, and is presented as a contribution by the National Society for the Study of Education on the theme proposed by its own Executive Committee, by the National Education Association's Commission, and by the National Association of Directors of Educational Research. The editor is responsible for the final revision of the material.

GUY M. WHIPPLE.



## INTRODUCTION

The most significant and important movement in the field of education during the past decade has been the rapid development and the constantly increasing use of scientific measurements. These in the main have been of two sorts—measurements to ascertain the native ability of the pupil, and measurements to determine his school attainment. The first of these has to do with so-called “intelligence tests,” or “mentality tests,” and the second with tests for specific school subjects. Intelligence tests were first systematically undertaken by Binet more than fifteen years ago, but it is only within more recent years that these tests and others of an analogous nature have been extensively employed in school practice.

In 1897 Dr. J. M. Rice published in the *Forum* two articles giving an account of his investigations of the spelling abilities of school children in the United States. The simple tests that he employed were the first definite attempt made on an extensive scale to measure any aspect of school achievement. For this reason Dr. Rice has been called the “father of educational measurements.” Since this early attempt, the movement to measure school attainments in a fundamental and scientific way has grown to astonishing proportions.

The growth and practical application of intelligence tests has paralleled that of tests to measure school products. The two movements have gone hand in hand, as indeed, they should. Both must be used in conjunction if we wish to know the real facts about actual achievement of pupils and the efficiency of a teacher, a room, a building, or a school system.

The recent wide acceptance of these two agencies for determining school achievement has been on the whole decidedly beneficial. However, the character of tests and their theoretical and practical values have been misunderstood in part, and the result too often has been either an unreasoning and blind antagonism or a superlative and uncritical acceptance of these means for discovering and directing pupils’ abilities and attainments.

## VIII

To those who believe in the fundamental value of educational testing, the antagonism of some of its opponents has been annoying, while the unrestrained enthusiasm of some of its uncritical supporters has been alarming. It is in the field of mental testing that the greater danger resides, since here the nature, objects, and practical values of testing are more easily misunderstood than in the field of the measurement of educational products.

For the purposes of correcting some of these errors and misunderstandings and of explaining in a clear and accurate manner the theory, nature, and practical use of intelligence tests, the present *Yearbook* has been compiled. It is composed of two parts. In Part I the more theoretical, general, and technical aspects of mental testing are set forth in such a manner, it is hoped, that the treatment may be easily understood by those who have little expert knowledge of, or skill in, the matters here considered. Indeed, it is the aim in this part of the *Yearbook*, as well as in the following part, to set forth the facts in regard to mental testing in as simple and direct a way as possible, so that all who are interested in the subject may get a real insight into the theory and the uses of mental testing.

Part I attempts to show just what is to be understood by the term "general intelligence," to indicate how this may be measured and to show the steps by which mental tests have grown up and some of their most essential characteristics. Further, the attempt is made to acquaint the teacher and administrator with the correct methods of studying and evaluating the results of mental testing. A descriptive bibliography is added which furnishes information in regard to the various group tests of intelligence now available. A brief chapter is added on the importance of measurement in education generally.

Part II takes up in some detail the administrative uses of intelligence tests in various grades of instruction, beginning with the primary grades and ending with the college and university. In the discussions in this part of the book the purpose is to set forth in some detail the procedure and results of mental testing as far as they relate to matters of instruction and administration.

## IX

The Committee hopes that the *Yearbook* will prove its worth as a guide to those who wish to understand the significance of mental tests and who seek to employ them for the betterment of the school product. If this hope is to any extent realized, the Committee feels that its labors will not have proved in vain.

HELEN DAVIS,  
BESSIE LEE GAMBRILL,  
HENRY W. HOLMES,  
WARREN K. LAYTON,  
W. S. MILLER,  
RUDOLPH PINTNER,

AGNES L. ROGERS,  
HAROLD O. RUGG,  
M. R. TRABUE,  
E. L. THORNDIKE,  
G. M. WHIPPLE,  
STEPHEN S. COLVIN, *Chairman.*



# CHAPTER I

## MEASUREMENT IN EDUCATION

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---

The task of education is to make changes in human beings. We teachers and learners will spend our time this year to make ourselves and others different, thinking and feeling and acting in new and better ways. These classrooms, laboratories, and libraries are tools to help us change human nature for the better in respect to knowledge and taste and power.

For mastery in this task, we need definite and exact knowledge of what changes are made and what ought to be made. In proportion as it becomes definite and exact, this knowledge of educational products and educational purposes must become quantitative, taking the form of measurements. Education is one form of human engineering and will profit by measurements of human nature and achievement as mechanical and electrical engineering have profited by using the foot-pound, calorie, volt, and ampere.

Until very recently, measurements of human qualities in education were rare. For example, the educational measurements reported by the federal and state and municipal governments up to 1910 concerned chiefly time and money, the number of teachers and students engaged, the number of days they spent, the value of buildings and grounds, the cost of books and supplies. The abilities of those who were educated and the betterments of intellect, character, and skill which were produced in them were left to speculation and faith.

We had, of course, alleged measures of educational achievement in the "marks" or "grades" reported for each student in each study or activity, in promotions and graduations and honors, and in the results of examinations for licenses to practice law and medicine, or to teach, and for various posts in the civil service. These marks and grades, however, were opinions rather than meas-

urements, and were subject to two notable defects. Nobody could be sure what was measured, or how closely the measure tallied with the reality! Marks in freshman algebra, for example, might be measures of inborn talent for mathematics, or of acquired power at mathematics, or of mathematical erudition, or of temporary memory, or of docility and fidelity in doing what the instructor ordered, or of sagacious divination of what the instructor desired! When we measured length or weight or volume or temperature or electric potential, all competent persons measured the same thing. But when we measured achievement in first-year Latin or college algebra, even the most competent twenty teachers measured twenty different composites.

Dearborn found, for example, among instructors teaching the same subject in the same college to the same grade of students, some who gave ten times as many "A's" as others did, and reported less than one-tenth as many failures. Finkelstein found that identical students in the same course taught during the first semester by one instructor and during the second by another, had three times the probability of a mark above 85 in the one case that they had in the other.

The general result was scandalous. Foster found in the elementary courses at Harvard that "A's" were thirty-five times as common in Greek as in English. Meyer found that over a period of five years one professor had never permitted a single student out of nearly a thousand to fail, whereas another in the same college reported nearly three hundred per thousand as failures.

Moreover, even when we did know fairly well what we were measuring, the mark or grade given by any one examiner might correspond only by a shockingly wide margin with the reality. For example, let the ability to be measured in geometry be defined as the ability to answer a certain specified set of questions and prove certain specified propositions. Elliott and Starch found that a hundred experienced teachers of mathematics assigned grades ranging from 28 to over 90 to the same set of replies in an actual examination paper.

It may be thought that such variations as this 28 to 90 are largely due to a general severity or leniency in the judge, in which



case deans, scholarship committees, and even students, might allow for them by multiplying each instructor's marks by some quantity representing his personal equation. The more important factors in causing such variations are, however, variations in the importance assigned to different qualities and a sheer inability to judge educational products accurately. Allowance for personal severity or leniency fails to eliminate the variation or greatly to reduce it.

When a student received 70 as the official rating of his work for a year in English composition or Elementary Chemistry, or the History of England, neither he nor we knew what it was 70 of, nor whether it was really 60, 65, 70, 75, or 80 of it. Clearly defined units of measure and instruments by which to count them were lacking.

The first steps to establish such units of educational products, and to devise instruments to measure them with reasonable precision were taken about a dozen years ago. The work began naturally enough with the simple matters of reading, writing, spelling, and arithmetic, which are a large fraction of the task of fifteen million children in this country each year.

The hypotheses and experiments involved in establishing such educational units and scales are somewhat intricate and elaborate, and are too technical for presentation here, but the nature of the scales themselves may be at least roughly illustrated.

In penmanship, for example, imagine a row of specimens of handwriting beginning with one called zero because it is just not legible and possesses just not any beauty or other merit in handwriting. At the other end of the row is a specimen called 17 which possesses a very large amount of general merit as handwriting. In between are specimens representing 1, 2, 3, 4, 5, and so on, each step of difference in merit being equal to any other. The unit is one-tenth of the difference between the best and worst writing found in 1000 children of grades 5 to 8.

When a desired or obtained change in ability to write is defined as improvement from 8 to 10 in this scale, anybody, anywhere at any time, can know what is meant almost or quite as definitely as when we speak of a baby changing from 8 to 10 pounds in weight, or a current increasing from 8 to 10 amperes. Impartial

judges, rating a pupil's handwriting by pushing it along the scale until the point is found which it most resembles, will agree closely—not, of course, as closely as they would in measuring a wire with a foot-rule, but, with the aid of repeated measurements of it, closely enough for any important educational purpose involved.

Or consider a measurement of word knowledge like this. The student sees a word followed by five other words or phrases. He is to underline that one of the five whose meaning is the same, or most nearly the same, as that of the given word. The test begins with words in the first thousand for importance, such as:

<i>afraid</i>	full of fear	possible	necessary	raid	ill
<i>baby</i>	manner	trembling	little child	notice	soft

It continues with words of less and less importance, but all in the first ten thousand for importance, having, for example, to represent the tenth thousand, such words as:

<i>ambiguous</i>	offensive	uncertain	roomy	very large	material
<i>canyon</i>	menagerie	palate	valley	gun	rule
<i>classify</i>	arrange	pacify	make clear	recede	promote
<i>divulge</i>	different	common	tell	repress	project

Such an instrument for the measurement of word knowledge has many merits. For our present purpose we may note two obvious ones: the score is absolutely objective—the same test paper would receive the same rating from any examiner; the examinations for different classes or in different years can be made exactly equal in difficulty.

While scientific workers in education have been establishing units and scales of educational achievement, the psychologists have been improving their tests of intelligence. The two sciences are also cooperating in devising tests of various scholarly capacities, such as the capacity to learn arithmetic, the capacity to learn to spell, or the capacity to learn Latin.

Measurements of pupils' capacities and achievements in more or less standardized psychological and educational units, are now a common feature of elementary schools. At least a million boys and girls, probably, were measured last year in respect to general intellectual capacity for school work. The number of such measures of reading, writing, spelling, arithmetic, history, and geography made during the year, probably exceeded two millions.

When we have measured a pupil in respect to his achievement in a school subject, and his capacity for that subject, the quotient of achievement divided by capacity is an important measure of accomplishment. A score of 70 made by a capacity of 70 is obviously very different from a score of 70 made by a capacity of 140.

In elementary schools, which are managed scientifically, these accomplishment quotients or ratios, familiarly known as A. Q.'s, are recorded year by year for each pupil. The pupils of great natural ability are required to do enough more than the average to keep their A. Q.'s near 1. They are thus protected against habits of idleness and conceit. The pupils of little natural ability are not rebuked or scorned for failures in gross achievement. They, too, are required simply to maintain their A. Q.'s near 1.

It may be expected that measurements of achievements and capacity and their quotients will soon be developed for use in high schools, colleges, and professional schools. It surely is unwise to have the measure of college students' achievement in English composition, or trigonometry, or beginning chemistry, or economics or second-year French depend upon the caprices of a thousand different individual instructors, if by enough ingenuity and care we can devise tests that will measure their achievements uniformly and precisely. The present condition at its best is shocking. The average correlation between the grades given in a subject and a student's real achievement in it is, in even the best American colleges, almost certainly not over .80, which means that the official ratings are six-tenths as erroneous as would be the case if the grades were assigned at random by a child, as in a lottery! If 900 students pass and 100 fail by the official ratings in a subject, there is every reason to believe that nearly half of those who failed really did better than some of those who passed.

It is demoralizing to students to find that their official ratings (on which degrees, honors, and financial rewards are given) depend so little on real achievement, so much on irrelevant matters and mere chance. It may, of course, be explained to them that, although any one mark is largely composed of error, the average of the score of marks received in two years will be a just measure of achievement in general. But such a lesson in the theory of proba-

bility gives little comfort to the student who has failed in subject A and must repeat it, though he had a much better mastery of it than of subject B in which he passed, or than another student had who passed in it.

As for the instructors, I do not know which is worse, the stupid conceit which assumes that the "A's" and "B's" and the "C's"—the 60's and 70's and 80's—are infallible indices of achievement and merit, or the sardonic indifference which prepares examinations whose findings it does not trust, and rates them carelessly with the excuse that even with care the ratings would be of little value.

That standardized examinations and other instruments for measuring achievement in colleges and professional schools are both possible and useful seems certain from experimentation of the last few years, slight as it is.

Their preparation, however, requires the cooperation of experts in the teaching of each subject and experts in mental measurement, a high degree of inventiveness, and much experimentation. Measuring achievement in a course in chemistry is a more elaborate task than measuring the atomic weight of oxygen. To measure improvement in knowledge of economics is harder than to measure the changes in the value of the dollar. Adequate units and scales for ability to read Latin may be more complex than Latin syntax itself. It may be many years before we can really measure achievement in, say, first-year French, so as to list its various features, define 0, 1, 2, 3, 4, etc., of each feature, know that what we call 4 of it is twice what we call 2 of it, and be able to tell with surety what amount of each any given student had at the beginning of the course and at its end. Until we can do so, however, all reports and grades are cryptic and likely to mislead; all comparisons of institutions and methods of teaching are insecure; all exact knowledge of what educational effort produces, is lacking. So it is our duty to try.

Moreover, every step of progress toward a truly objective measure is profitable. Last year, for example, those instructors in Columbia University concerned with the required freshman course in Contemporary Civilization, with some aid from an expert in mental measurement, prepared an instrument for testing achieve-



ment in that course, which took one step toward a genuine measure in place of opinion. It seems certain that none of the instructors and few or none of the competent students would be willing to go back to the old form of examination.

The case is nearly or quite as strong in measures of capacity. It surely is unwise to give instruction to students in disregard of their capacities to profit by it, if by enough ingenuity and experimentation, we can secure tests which measure their capacities beforehand.

Measures of special capacities, as for mathematics or for languages, have not, to my knowledge, been used as yet above the high school. But measures of general abstract intelligence or scholarly capacity have within three years come into wide use in universities. At about the same time, the Dean of Columbia College, the Director of Admissions in this University and Professor Colvin, of Brown University, began to take a careful measurement of general capacity to handle facts and symbols as one feature of the record of entering students.<sup>1</sup>

This measurement has abundantly proved its worth. It gives a very close prophecy of the grades a pupil will obtain in his freshman year—six-sevenths as close as one-half of the grades prophesies the other half. It points out almost unerringly any very stupid boys who have been hauled into college by their teachers' skill and their parents' money; or who have floated into college by careless certification. It helps the faculty or dean to decide quickly and correctly whether a case of deficient achievement is due to physical, intellectual, or moral causes. It permits the computation and use of an approximate A. Q., or accomplishment quotient.

At a certain university, for example, all the students of high scores in the capacity examination are called into conference by the dean and it is made clear to them that anything below A and B is essentially a failure for them, as anything below D is a failure for their less gifted fellows.

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<sup>1</sup>Short tests, to serve somewhat the same purpose, but less precisely, had been used elsewhere, notably at the Carnegie Institute of Technology; and voluntary tests of certain psychological capacities had been made by the department of psychology at Columbia as early as 1894 for any freshman applying.

Of measurements in professional schools, I regret that time does not permit me to do more than mention the very active and important movement to that effect in schools of engineering stimulated by the Carnegie inquiry and its report of three years ago.

On the whole, it appears that the effort to replace opinion by measurement in our ratings of the achievement of higher education will increase and spread rapidly. Indeed, it may soon need protection from over-extravagant hopes more than from hostile criticism.

In the elementary schools we now have many inadequate and even fantastic procedures parading behind the banner of educational science. Alleged measurements are reported and used which measure the fact in question about as well as the noise of the thunder measures the voltage of the lightning. To nobody are such more detestable than to the scientific worker with educational measurements.

There are three criticisms in particular which even sound and accurate measurement in university education must meet:

First, it will be said that learning should be for learning's sake, that too much attention is given already in this country to marks, prizes, degrees, and the like, that students work too much for marks rather than for real achievement. Whatever force this argument has, is towards abandoning our official measures of achievement or towards making them measures of real achievement. Students will work for marks and degrees if we have them. We can have none, or we can have such as are worth working for. Either alternative is reasonable, but the second seems preferable.

Second, it will be said that the energy of teachers should be devoted to making achievements great rather than to measuring how great they are. It is true that for many teachers and many students, it is wise to teach and learn as well as may be, leaving the results to faith and hope, or even charity. Moreover, there are gifted personalities to whom scientific and business-like procedures are alien and even odious, and who should not be required to measure what they are doing or even, in the ordinary sense of the word, to know what they are doing. Their genius is better than efficiency. There are, however, not enough of these to be more than a negligible



factor in, say, the teaching of freshman English or first-year anatomy or the Law of Contracts. Most of us need to know what we are trying to teach or learn, and how far we have taught it or learned it; most of us will be aided, not hindered, by instruments for measuring educational purposes and products.

Third, it will be said that only the baser parts of education can be counted and weighed, that the finer consequences for the spirit of man will be lost in proportion as we try to measure them, and that the university will become a scholarship factory, turning out lawyers and doctors guaranteed to give satisfaction, but devoid of culture. This is a part of the general fear that science and measurement, if applied to human affairs—the family, the state, education, and religion—will deface the beauty of life, and corrode its nobility into a sordid materialism. I have no time to present evidence, but I beg you to believe that the fear is groundless, based on a radically false psychology. Whatever exists, exists in some amount. To measure it, is simply to know its varying amounts. Man sees no less beauty in flowers now than before the day of quantitative botany. It does not reduce courage or endurance to measure them and trace their relations to the autonomic system, the flow of adrenal glands, and the production of sugar in the blood. If any virtue is worth seeking, we shall seek it more eagerly the more we know and measure it. It does not dignify man to make a mystery of him. Of science and measurement in education as elsewhere, we may safely accept the direct and practical benefits with no risk to idealism.



## CHAPTER II

### PRINCIPLES UNDERLYING THE CONSTRUCTION AND USE OF INTELLIGENCE TESTS

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STEPHEN S. COLVIN

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The rapid development and extensive use of so-called intelligence tests during the past few years is one of the most striking and interesting facts in the field of educational psychology and one of the most significant in the province of school administration. Not only are psychologists today giving a large measure of their attention to devising, improving, and applying mental tests, but teachers and school administrators are employing these tests more and more to determine the ability of school children to do school work. Indeed, there is danger at present that the movement in the direction of intelligence testing may grow out of all bounds; that it may be misunderstood in theory and erroneously and even harmfully applied in practice. It is with the purpose of making somewhat clearer the nature of intelligence tests and of pointing out their value and their limitations that this chapter is composed.

#### I. WHAT IS GENERAL INTELLIGENCE?

##### 1. General Intelligence a Native Endowment

Intelligence testing is concerned in determining what psychologists have termed "general intelligence." Just what general intelligence is may easily be misunderstood, although there is a fair, though by no means a perfect agreement as regard to the significance of the term. By the word *general* is commonly understood an innate ability or group of abilities that lie at the basis of the acquired intelligence of an individual. *Intelligence itself is not inborn, only the capacity to become intelligent.* For this reason some writers prefer the term "mental tests" or "mentality tests" to the term "intelligence tests," since these writers mean

by mentality the inborn capacity of the individual to become intelligent, provided he has the proper environment in which his mentality can develop into genuine intelligence. General intelligence, or mentality, then is to be understood as a native endowment which makes it possible for the individual to become more or less intelligent on the basis of this endowment. If a child is 'born long' in general intelligence, then he may, under proper conditions, achieve high intelligence in his knowledge of, and contact with, the world and his fellows; if he is 'born short' in general intelligence, then, no matter how fortunate his surroundings, he will be doomed to acquire in contact with his environment only a modicum of knowledge and skill.

## 2. General Intelligence Either a Single Capacity or a Group of Related Capacities

While all competent authorities would agree that the expression "general intelligence" designates inborn capacity to acquire intelligence in the various situations of life, they would disagree as to the further interpretation of this term, in regard to the significance not only of "general" but also of "intelligence." There are some who hold that the word "general" signifies a single inborn capacity to become intelligent in all situations; others that the term "general" means nothing more than that a person is born with a large number of specific capacities, more or less related, which enable him to acquire intelligent behavior in many different activities. The supporters of this first view, notably Spearman, Hart, and Burt, explain innate intelligence as a "general common factor." Similarly, Pyle has attempted to show that all individuals have a certain all-round learning capacity which is constant for different types of material. He believes that children and adults differ widely in innate learning ability, irrespective of the material learned, and that this ability is identical with, or closely related to, general intelligence. The writers who urge that general intelligence is an innate central capacity think of it as a single quality that may be transmitted, as the color of eyes is transmitted, from parent to offspring. Individuals inherit this all-round unitary capacity, and if it manifests itself more in one kind of activity than

in another, this difference is not due to the fact that there are parts, or aspects, to general intelligence. The differences are due either to other inherited abilities or to the varying opportunities presented to the individual to learn in different fields of human activity. Specifically, if a child acts with great intelligence in his class in arithmetic and very stupidly in his class in music, this is not due to the fact that he had two kinds of innate intelligence, one for number and one for music, but rather to differences in opportunity to learn and interest in learning in these two fields, or to specific inborn capacities which in one instance favor the development of his general intelligence and in the other hinder this development. For example, no matter what the general intelligence of the child might be, he could hardly be expected to become highly intelligent in his work in music if he were born with a poor sense of rhythm and with an innate inability to distinguish between tones varying in pitch. In such a case his general intelligence would have little or no opportunity to manifest itself in the face of so specific an inborn handicap.

While there are some who strongly hold to the view above outlined—that general intelligence is a unitary or central inborn factor—there are others who take the view that the term designates a large number of more or less closely related innate capacities to become intelligent in various life activities. Thorndike, in particular, advocates this view. He holds to a multiplicity of innate abilities that are related in varying degrees. He believes that between desirable single traits in a single individual there is a positive relation. “Having a large measure of one good quality *increases* the probability that one will have more than the average of any other good quality.” The fact that a child has pronounced native ability in arithmetic is an indication that he will have more than average native ability in geography, even that he will be above the average in his moral qualities, but it is not certain that he will be. According to Thorndike, then, general intelligence is a term by which a large number of innate abilities to become intelligent may be classified, or arranged in a pigeon hole for purposes of convenience, because all the abilities so arranged are likely to be in some kind of agreement. More specifically, Thorndike believes that there



are three main types of innate intelligence, namely, intelligence for words and abstract ideas; motor intelligence, or skill with the use of the hands, and social intelligence, or the ability to get on well with one's fellows. These three types are positively related, but not necessarily in a high degree. The first type concerns itself particularly with abilities necessary to get on in school and college in the ordinary academic courses and in the more abstract aspects of applied courses. The second type of ability concerns itself with the execution of skillful motor acts and the comprehension of mechanical constructions and processes. The third type has to do with the understanding of one's fellows and with influencing and leading them. In order to be an excellent mathematician or classical student one must be 'born long' in abstract intelligence; in order to handle tools deftly, to invent and design, one must have in a considerable degree the second type of intelligence; in order to be a successful salesman or a social leader one must possess superiority in the third type of intelligence.

Not only are there three main types of innate intelligences, but within these main types there are subdivisions. An intelligence test that surveys a person's general intelligence does not indicate in particular the various aspects of this intelligence. To quote Whipple<sup>1</sup>: "Take, for instance, the testing of the mentality of a gifted child, a Winifred Stoner or a William James Sidis. To discover by simply testing that such a child has an I. Q. of a given amount is interesting, but it fails to get us anywhere in our real inquiry as to just which ones of the various mental functions are possessed of the extraordinary heightened efficiency. Is it memory span or capacity for concentrated attention or ability to handle symbols or apprehension of abstract relations or acute perceptive capacity or lively imagination or originality or breadth of associative tendencies or speed of learning or what that demarcates such a child from other children? What about his special abilities: does his musical, mechanical, arithmetical, linguistic, dramatic, executive, poetic, artistic and so forth ability exhibit the same unusual development or not? These questions compel us to plan out an

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<sup>1</sup>G. M. Whipple, *Bulletin of Extension Division, Indiana University*, "Fifth Conference on Educational Measurements."

elaborate program of mental testing and to carry this forward on the one individual until we can plot for him a comprehensive 'psychogram' or 'psychological profile.' "

Thus the question as to whether there is *a* general (innate) intelligence or various kinds of general intelligences, more or less closely related, in the same individual is still a matter of controversy. The writer, personally, is inclined to the second view. He is led to assume that there are various inborn abilities that are general in their character in the sense that they appear in many life situations and in a somewhat close agreement in a single individual and that at the same time there are abilities of a very specific character that are not closely related to other abilities. Generally speaking, a pupil who has the capacity to do good work in arithmetic or algebra is likely to stand well in history or geography or general science; he may do good work in the manual training shop, though this is by no means certain. It would not be safe to predict confidently in regard to his ability to sing or act, to paint or to dance, and it is quite possible that, while he might stand at the head of his class in high school or college, he would have little or no native ability as a newspaper reporter or a salesman. After all, to the practical schoolman it makes very little difference whether general intelligence is a central factor or a bundle of different abilities related positively; *the child cannot be treated as a unit—he must be discovered in his various tendencies and abilities* and if we wish to know him as he really is, we must be able to work out the "psychogram" which Professor Whipple has mentioned.

### 3. General Intelligence is Fundamentally, Ability to Learn

Up to this point our discussion has concerned itself with the significance of the term "general" as descriptive of intelligence. We have seen that it means an inborn capacity or group of capacities more or less closely related. All psychologists agree that it refers to something innate, something that cannot be acquired or learned. Some psychologists consider it to be a single, unitary, central trait, others a group of traits that can be conveniently classified together and which show certain relationships and correspondences. It is now left for us to consider what the second part

of the term "general intelligence" signifies to psychologists. Here again we find a reasonable, but not a complete, agreement.

Recently a group of fourteen psychologists, authorities on mental testing, contributed to a symposium on the subject of "Intelligence and Its Measurement" in the *Journal of Educational Psychology*.<sup>2</sup> In this symposium they gave their views as to the nature of general intelligence. Some took the ground that the term intelligence could not be adequately defined or described in the present state of our knowledge; others gave very broad definitions, such as the "power of good responses from the point of view of truth or fact," or "the ability of the individual to adapt himself adequately to relatively new situations in life." Some emphasized the rational element as the essential one, considering intelligence as the ability "to carry on abstract thinking." This latter definition doubtless concerns the highest level of intelligence, and is one very essential aspect of it, but an individual may have little ability to deal with abstract ideas or to reason and may still possess a modicum of intelligence. Indeed, the intelligence tests so far devised give only a small part of their attention to the testing of reasoning abilities, and devote a much larger share to more simple intellectual processes. Buckingham<sup>3</sup> seems to express the matter of intelligence tests and the nature of intelligence in a helpful way when he says that, whatever our views may be in regard to the nature of intelligence in the abstract, "we are justified, from an educational point of view, in regarding it as ability to learn, and as measured to the extent to which learning has taken place or may take place."

An inspection of the various intelligence tests now in use clearly shows that psychologists have accepted this definition practically, if not theoretically. Intelligence tests are by no means confined to problem-solving, even in its simplest forms. They determine an individual's intelligence largely in terms of what he has learned, thus obtaining a measure of his ability to continue learning. Vocabulary tests, range of information tests, same-and-opposites tests, tests of fundamental operations in arithmetic (one

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<sup>2</sup>March, April, and May, 1921.

<sup>3</sup>*Journal of Educational Psychology*, Vol. XII, No. 5, p. 273.



of the most widely used) and the like, demand little that is novel, little that tests rational powers. If an individual has sufficient knowledge and skill he can pass these tests. They measure intelligence only on the assumption that they test ability to learn by discovering what has already been learned. Even those tests that involve ingenuity, deliberation, and choice with words or things are based on elements that show what a person has already acquired. An example of this fact may be shown by the following extract from a test:

Below are five words, four of which are related according to some principle. One word is not so related. Cross out the unrelated word: *physics, chemistry, geology, history, biology*.

Now it is quite obvious that a successful passing of such a test is in part dependent on an ability to reason, to classify, to meet intelligently a new situation, or on some other similar mental activity of a fair degree of complexity; but also a large, perhaps the greater part is dependent on a knowledge of words and their significance in more or less detail. This knowledge is based on previous learning. It is clear, then, that a considerable part of intelligence testing is dependent on what has been learned; further, it should be remembered that the ability to learn is very closely related to the capacity to meet new situations intelligently, to reason, to abstract, etc. Therefore, to identify general intelligence with native learning ability is, both theoretically and practically, justifiable. We shall not be far from the truth when we define general intelligence as *a group of innate capacities by virtue of which the individual is capable of learning in a greater or less degree in terms of the amount of these innate capacities with which he is endowed*.

## II. HOW CAN GENERAL INTELLIGENCE BE MEASURED?

General intelligence is an inborn capacity. It does not manifest itself, however, except through learning. If an individual were born with a very high capacity to become intelligent, but had no opportunity to learn, he would possess no intelligence. *Intelligence must be acquired. Only the capacity is inborn*. There has been much argument in recent years as to whether nature (inherited

capacity) or nurture (training of the environment) is the more important. The whole discussion is likely to be beside the point and quite misleading unless care is taken to define exactly the position taken by those who debate the question. It is quite evident that a feeble-minded child can never become highly intelligent, never mind how favorable his environment, how skilled and patient his teachers. His innate endowment will not permit him to go beyond a certain level of attainment. Water will not rise above its level. On the other hand, the greatest potential intelligence will never become highly intelligent in an environment that affords scant opportunity to learn. The brightest European child reared from birth by a group of African Pigmies would appear as a moron or worse if later transported to a highly civilized and cultured environment. Whatever the native mentality of a deaf-mute, that individual must actually grow up as feeble-minded unless special methods of instruction are employed to reach his native ability and develop it. The truth of the matter is that when an environment is practically the same for a group of individuals, then the great differences that are found among these individuals are due to differences in native ability. Specifically, if forty children in the fifth grade of the elementary school show varying degrees of attainment in their school work, it is probably true that these differences are to be explained to a considerable extent as arising from inborn differences in mental capacities. The justification for the truth of this explanation lies in the fact that all of these children have had similar opportunities and similar incentives to learn. The environment in which they have been reared, while not identical for all, has not varied substantially from child to child; at any rate they have had about the same schooling. One factor (the environment) in the acquisition of intelligence has been practically constant; hence differences in acquired intelligence must be largely due to the other factor (innate capacity to learn). *Nature is more important than nurture in explaining individual differences in acquired intelligence, when the nurture has been similar for the group concerned. On the other hand, it would be equally true that nurture would be more important than nature in explaining individual differences if the native equipment of a group were substantially the same and the environment markedly different.*

## 1. Mental Tests are Possible When Based on Elements Involving the Common Experiences of Those Tested

The foregoing consideration explains the feasibility of devising tests to measure general intelligence. At first thought, it may seem impossible to determine the amount and nature of an innate capacity or group of capacities that manifest themselves only through learning. These capacities can be measured only indirectly through what has been acquired, never in their native purity. However, they can be indirectly measured successfully by measuring the acquired capacities in a group with substantially the same experience. *We never measure inborn intelligence; we always measure acquired intelligence, but we infer from differences in acquired intelligence, differences in native endowment when we compare individuals in a group who have had common experiences and note the differences in the attainment of these individuals.*

## 2. The Binet and Subsequent Tests Constituted on This Principle

Hence it follows that an intelligence test, to be valid, must be composed of elements appealing to the common interest and within the common experiences of the group tested. All successful intelligence tests have implicitly or clearly recognized this principle in their construction. As a case in point let us consider the Binet tests as originally devised by their author. They show on examination the fact that their separate tests were arranged on the basis of the common experiences of the children of varying ages. Children failing to pass tests for their particular age satisfactorily were classed as subnormal because they were below the reasonable attainment of their group. In no case were tests employed that were based on peculiar conditions or unusual opportunities for learning. Tests for any given age are given on the assumption that all normal children should have learned the things with which they have had common acquaintance. For example, a child of three is asked to point to his eyes, his nose, his mouth, to tell what he sees in a simple picture, etc.; a child of four to identify a key, a penny, and a knife. An older child is asked to count and make change, to give a rough definition of certain simple objects, to execute brief commands, to estimate weights, to give explanations and reasons, to

make aesthetic comparisons, and so on. The validity of this mental examination is definitely dependent on the extent to which the children examined have had previous knowledge of the items in which they are tested. Clearly, a child of three, however bright, could not point to his nose unless he had previously learned about this part of his face. To count pennies, to make change, to give sensible answers and explanations, these attainments are conditioned on the opportunities the children have had to learn about pennies, actual practice in counting and making change, knowledge of the words which they are to define, etc. Binet found, for example, that the average child of seven years could do certain things and answer certain questions. If a child of seven falls far below the average in his ability to respond to the tests, this is not because of lack opportunities to learn, but because of definite inability to learn. Such a child is feeble-minded if this inability is pronounced.

3. Not Only is a Valid Mental Test Based on Common Experiences;  
It Must Assume Common Interests as Well

It cannot be too strongly emphasized that *no test to determine intelligence is valid unless the individual tested has had a reasonable opportunity to learn about the various elements involved in the test and has also been interested in learning.* Some errors have already been made and still more are likely to be made in drawing conclusions as to the absolute or relative intelligence of individuals in a group or in various groups when the experiences and interests of members of the group or groups have been to any considerable extent different. A few specific instances will make this important point clear. It is a striking fact that the Army Alpha Tests, which in the past few years have been given extensively in colleges, normal schools and high schools, show in practically every instance higher average scores for men and boys than they do for women and girls. The conclusion might be reached that the intelligence of men on the whole is somewhat superior to that of women. That such a conclusion is not justified is at once seen when the Alpha Tests are examined. These tests were devised to measure the intelligence of soldiers. They included materials which on the whole would be somewhat more familiar to men than to women, because



the *interests* of the sexes are not by any means the same. It is the *interest* here in learning rather than the actual *opportunity* to learn that determines whether the test is equally fair for both sexes.

Another and more emphatic instance in point will show even more clearly how the matter of interest may determine whether materials included in a mental test are equally fair for all tested. A few years ago the writer gave the Stenquist mechanical ingenuity tests to two high-school groups, one of boys and the other of girls. The boys scored decidedly higher than did the girls. The difference was impressive, and from it might have been concluded that the innate mechanical intelligence of the boys was vastly superior to that of the girls. The facts, however, warrant no such conclusion. Girls traditionally are not interested in things mechanical, and not being interested in them, they do not learn about them. They may or may not have equal innate mechanical intelligence. The Stenquist tests could throw no light on this problem unless they were given to groups of boys and girls all of whom had had the same opportunities and incentives to learn about mechanical facts and principles.

#### 4. Scores Obtained in Typical Intelligence Tests Conditioned in Part on Knowledge of English

As has been said, opportunity to learn as well as interest in learning is a determining factor in devising and using mental tests. As an illustration of this may be sighted results obtained in giving the Otis Intelligence Tests to the children of the public schools in Brookline, Massachusetts, and in Cincinnati, Ohio. In the former city the tests were given under the direction of the writer; in the latter, by Warren W. Coxe. In Brookline the average scores were much larger than in Cincinnati. The children of Brookline were on the whole a clearly superior group, according to the published Otis norms, while the children of Cincinnati were somewhat inferior. An average Brookline child of twelve would have, according to the results of these tests, a mental age about two years in advance of the average Cincinnati child. Are we to conclude, then, that the Cincinnati children are really inferior in innate intelligence to the Brookline children? I am inclined to think not.

The great differences in the scores I attribute to differences in opportunities to learn words and their meanings. Examination of the Otis tests, and other similar tests, will show that success in passing these tests is conditioned largely on extent and accuracy of vocabulary and on verbal ingenuity. In no single element entering into school attainment do children vary so much as in the knowledge of words and the ability to use words. Much of this knowledge and skill is determined by the home environment. Brookline is, on the whole, a center of culture where the children acquire at home an ability to use English in a superior degree. The same is not so conspicuously true in Cincinnati.

That this explanation is not altogether fanciful is shown by the following facts: In Brookline there was a considerable difference in the median scores, as well as the maximum scores, for the children of the 'better' and the 'poorer' localities. These differences were marked in the case of most of the verbal tests; they were not found to exist when the arithmetic tests were examined. Clearly, the differences were differences in verbal ability, not in innate intelligence.

Further corroborative evidence that this explanation is at least in part correct is indicated by the circumstance that a number of students in Brown University either foreign born or of foreign extraction have received low scores on their mental tests but have done good college work. On investigating these individual cases, I have found that the low psychological scores are to be explained by the fact that these students have not the same familiarity and facility with the English language as those who have been reared in a more favorable environment. It is not their innate intelligence that is inferior, but their mastery of the vernacular.

Carrying this investigation somewhat further, I have collected data to show that in the City of Providence the Italian children receive scores in the National Intelligence Tests (largely verbal) on the average lower than those of the children reared in an English speaking environment. The Italian children, therefore, appear to be as a class of less intelligence than the children of native parentage. A more careful examination of these different groups reveals the fact that the National Intelligence Tests tend to under-

rate the real mentality of the Italian children. They score lower than the English groups because of a less familiarity with English. *It seems probable that all mental tests that are largely linguistic will be unfair to those persons whose training in English either at home or in the schools has been inferior.* It is only when individuals tested have had common opportunities to learn the vernacular that real differences in intelligence can be surely inferred from the scores secured. It must be kept in mind that *no general tests for general intelligence have yet been devised. Tests are valid only within a group who have had identical or very similar opportunities for gaining familiarity with the materials of the test, and who have not only the same opportunity to learn, but the same desire to learn.*

#### 5. In Order to Secure Valid Results the Administration and Scoring of Tests Must be Uniform

Further, the validity of tests is based not only on the considerations pointed out above. It is likewise dependent on the care, accuracy, and consistency of administering and scoring. Tests poorly and carelessly given and scored may give one result; tests carefully and accurately given and scored quite another. Indeed, Coxe in attempting to explain the great differences between the Brookline and the Cincinnati scores says: "The only possible explanation that occurs to us is in the method of giving and of scoring. He then goes on to point out that the tests in Cincinnati were given with the greatest care by himself and one assistant. However, this explanation does not seem to account for the differences in this particular instance, since the Brookline tests were administered only after very careful instruction of the teachers in the method of giving the tests, and since the results showed consistency among themselves. If they had been given carelessly and in various ways, there would have been no general tendency in one specific direction, as was the case with the Brookline scores.

However, that the significance of tests may be greatly impaired by lack of uniformity and care in administering and scoring seems to be shown by the results that Book<sup>4</sup> obtained from a

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<sup>4</sup>W. F. Book, *Preliminary Report of State-Wide Mental Survey of High-School Seniors*, Univ. of Indiana, 1920.

mental test given to the seniors in the high schools of Indiana. He sent to the various high-school principals of the state copies of the Indiana University Intelligence Scale, Schedule D (the Pressey Tests), through the offices of the state high-school inspector. With the test blanks were sent manuals of instruction to teachers and explicit directions for giving the tests. The actual giving of the tests was intrusted to a large number of individuals, many of whom had little or no knowledge of mental testing and few, if any, of whom had had any definite training in giving the tests. Under such conditions there must have been considerable variation in the manner in which the tests were administered. The result showed a low positive correlation between the scores in the mental tests and the previous school records of the seniors tested, as well as other facts that indicated that the relation between intelligence and school success was not so pronounced as is probably the case. Had these tests been more carefully and uniformly administered, it is certain that the findings would have been more definite and of greater practical value.

## 6. Summary

It may be seen from the foregoing discussion that in giving mental tests the following considerations should be definitely kept in mind:

1. Are the tests so devised as to be suited to the group tested? Particularly, do they contain materials with which all tested have had similar incentives and opportunities to gain familiarity?
2. Can comparisons safely be made between the group tested and other groups that have already been tested or are later to be tested? In other words, can general norms be relied on, or is it necessary to establish a norm for the particular groups tested? The writer's opinion is that *in the case of the great majority of the mental tests now on the market, little of definite value can be obtained by the use of the general norms already published.*
3. Are the tests administered and scored in a careful and uniform manner? Tests are much more satisfactorily administered if given by one individual trained for the work. When the tests are administered by a number of individuals there should be ample



discussion of the nature and significance of the tests and practice in their use before they are given.

### III. ORIGIN AND DEVELOPMENT OF MENTAL TESTING

#### 1. Study of Individual Differences

The first extensive and practical test to measure mentality dates back to the pioneer work of the French psychologist, Binet, who collaborated with the French physician, Simon, in the first decade of the present century. Binet quite appropriately is considered the founder of the movement. However, in a very real sense attempts had been made to determine innate abilities several decades before Binet published his original intelligence scale. Individual testing arose with the study of individual differences, and is contemporaneous with the work of Sir Francis Galton. Galton's work in the direction of mental testing was largely made known and developed in America by James McK. Cattell, as Professor of Psychology in the University of Pennsylvania and later in Columbia University. Cattell's service in the field to mental testing is well stated by his most distinguished pupil, Professor E. L. Thorndike. Of this work Thorndike says:<sup>5</sup> "Cattell refined Galton's methods and won recognition for such measurement of individuals as a standard division of psychology and of psychological training in universities, beginning at Pennsylvania the systematic inventory of mental traits which became such an important feature of the Columbia laboratory and which was for so many of us an introduction to the whole topic of individual psychology. His paper of 1890 on 'Mental Tests and Measurements' (*Mind*, Vol. 15, pp. 373-380) was the first of a series of influential contributions made during the decade and associated primarily with the names of Kraepelin, Binet, Cattell and Jastrow." On referring to this early paper of Cattell, we find a description of the tests used by him and the statement that some of these had already been used by Galton in his Anthropometric Laboratory at South Kensington Museum. An examination of Cattell's tests shows that they concern

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<sup>5</sup>*Columbia University Contributions to Philosophy and Psychology*, Vol. XXII, No. 4 (1914); p. 92.

themselves largely with sensory discrimination and rapidity of reaction. Likewise immediate memory (memory span) is tested by finding the number of letters a subject remembers at one hearing. Ability to estimate space is determined by a test requiring the bisection of a line of 50 cm.; ability to estimate time is tested by estimating a ten second interval. A judgment of least noticeable differences in weight is also included. In a later article by Cattell and Farrand<sup>6</sup> we find a description of the further extension of the work of mental testing as employed with students of Columbia University as subjects. The tests used included handwriting, visual acuity and color vision, auditory acuity and perception of pitch, sensitivity of the skin, perception of weight, sensitivity to pain, accuracy and steadiness of movement, reaction time, cancellation of A's, perception of time and space, memory-span, memory of length of a line previously drawn, after-images and mental imagery. In regard to these tests Cattell says: "Our experience with these tests leads us to recommend that they be made a part of the work of every psychological laboratory."

It can be seen that these earlier attempts at mental testing concerned themselves chiefly with what may be designated as the sensory and motor phases of mentality, and gave scant notice to the more elaborate phases of intelligence. In the tests of Binet we find several that are identical with, or similar to, these earlier tests. Specifically, we find in Binet's scale, memory-span test (in this case for digits and for words in a sentence rather than for letters); a test involving the estimation of space; another involving judgment in regard to weight. In addition to such tests as these the Binet scale includes tests regarding familiarity with common objects, tests that involve comparison and judgment on a rather high level and so on.

## 2. Binet's Scales and Their Revisions

Binet's first scale appeared in 1905; it included thirty tests and was roughly standardized. The scale of 1908 comprised fifty-six tests, arranged for the ages from three to thirteen. This scale was

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<sup>6</sup>"Physical and Mental Measurements of the Students of Columbia University," *Psychological Review*, Vol. 3, pp. 618-648 (1896).

revised and republished in 1911. In this final revision by Binet there were five tests arranged for every year, except one, from three to ten. Tests for the ages of twelve and fifteen were also included. Goddard, then at Vineland, used Binet's scale in dealing with his subnormal children. He also measured 2000 normal children with these tests, publishing the results in the *Pedagogical Seminary* for 1911. The Binet tests have been extensively used in America for a decade, and in the course of this time they have been extended and revised. Goddard made some slight revisions, in his work at Vineland. In 1915 Yerkes and others published a point-scale revision of Binet's tests. Kuhlmann has also revised Binet's tests in his work with subnormal children at Faribault, Minnesota. The most extensive and fundamental revision has been undertaken and carried out by Terman. His results appeared in 1916.<sup>7</sup> A pupil of Terman, Otis, has also worked out a standardization of an absolute point scale on the basis of the Binet tests. Of the various revisions of the Binet tests, that by Terman is the most important. The "Stanford Revision" (as these tests are called) was "the result of several years of work, and involved the examination of approximately 2300 subjects, including 1700 normal children." There are ninety tests in all, six for each age level from three to ten, eight for the age of twelve and six for the age of fourteen. There are also six tests for average adults and six for superior adults. A number of alternate tests for the various ages were also provided. Of the thirty-six new tests twenty-seven were added by Terman; he also borrowed a few tests from other sources.

### 3. Methods Used to Designate a Child's Intelligence

Binet expresses the child's mentality by giving his mental age in relation to his chronological age. Yerkes in his point scale shows the same facts by giving the total points scored by the individual in comparison with the average points scored by normal children of the age of the child tested. For example, a child whose chronological age is ten, when tested by the common form of the Binet tests might show a mental age of eight. He would then be classified as two years retarded in mental age by Binet. In the Yerkes scale

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<sup>7</sup> "The Measurement of Intelligence," Boston, 1916.

the same fact would be expressed by the statement that he received a total score of thirty-nine (the average score for a child of eight years), while if he had been normal he should have received a score of fifty-nine (the average score for a child of ten years). His actual intelligence is indicated by the ratio of the score made to the average score of children of the same chronological age as the child tested.

Terman in his treatment uses a somewhat similar method of indicating the individual's mentality. He states intelligence in terms of the I. Q. (Intelligence Quotient), which is obtained by dividing the child's mental age by his chronological age. Thus the child above referred to, whose mental age is eight and whose chronological age is ten, would have an intelligence expressed by an I. Q. of .80. This method of indicating a child's mentality has certain points in its favor, but it likewise involves dangers which must definitely be guarded against when I. Q.'s are used for administrative purposes. The chief value of the I. Q. lies in the fact that it expresses the child's innate intelligence in a more or less absolute way. It is intended to indicate his actual mentality irrespective of his age. According to Terman, an I. Q. remains permanent (with possibly slight changes) throughout an individual's life, at least up to the period of old age, when mental impairment begins with the breaking down of bodily functions. This would mean that if a child of five chronologically was mentally four years old, he would have an I. Q. of .80; at ten years chronologically he should have a mental age of eight and still an I. Q. of .80. Terman's contention seems on the whole to be substantiated by the facts, although it is probable, in some instances at least, that a child's I. Q. may vary from year to year, and that at times it may have a tendency to increase and at times to diminish.

While the I. Q. serves a very useful purpose in indicating to the teacher and administrator the probable intelligence of the pupil at each successive stage of his school progress and is important in forecasting the character and extent of his school attainment, it should never be used for purposes of classification of pupils without also taking into consideration the actual mental and chronological age of these pupils. This, of course, is a matter of plain



common sense, but a word of caution may not be out of place, particularly since in certain instances pupils have been compared and classified in their school work on the basis of I. Q.'s alone. Yet it can clearly be seen that children of the same I. Q. may be far apart in actual school attainment, because of differences in mental and chronological ages. *Children of varying mental ages, and even children of similar mental ages, but of markedly varying chronological ages, cannot be safely grouped together for school instruction. Innate intelligence, considered by itself, does not give us information in regard to acquired intelligence. We must group children for instructional purposes largely on the basis of their acquired intelligence and to a lesser degree on the basis of their chronological age. However, children who are approximately of the same mental age and whose chronological ages are not markedly different may be safely classified according to their I. Q.'s.*

The Binet tests were worked out by their author for the express purpose of segregating for special instruction all of the mentally defective children in the schools of Paris. Their aim was to detect feeble-mindedness. This original use, though still of importance, is of very much less value than their use in dealing with children of normal and supernormal mentality.

Various criticisms have been brought against the Binet tests, one being that they fail to be of any great service in accurate diagnosis of feeble-mindedness. Dr. Fernald<sup>8</sup> writes: "The Binet tests corroborate where we do not need corroboration, and are not decisive where the differential diagnosis of the high-grade defective from the normal is in question." This criticism is doubtless valid to the extent that the Binet tests are not suitable instruments alone to determine small variations in degrees of feeble-mindedness. However, they are on the whole reliable for discovering among school children those who are markedly deficient in intelligence, and they should be used for this purpose as well as for the classification of normal pupils. The Binet tests have been criticised also because they are too verbal in their nature; because they rely too much on words and too little on activities, *i. e.*, they appeal too much to abstract intelligence.

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<sup>8</sup>*American Journal of Insanity*, 1914.

#### 4. The Performance Test

Another type of intelligence test has been developed which in part at least meets these two objections to the Binet tests. This is the performance test, which like the Binet test, was worked out first for the purpose of detecting and diagnosing feeble-mindedness. The "performance test" is not, as is the Binet test, the work of a single individual; neither does it designate a specific group of tests. It is rather the name of a type of test or a method of procedure in testing. As the name indicates, a performance test emphasizes doing in a rather objective sense, generally doing with the hands. The intelligence of the individual is determined by what he does in response to a direction or command. Such a test may of course be executed with pencil and paper, but in its inception it was distinctly of the hand type of execution, with no writing or marking on paper involved. A test of this type is not only valuable as a supplement of the more verbal type of test, but is absolutely essential in determining the mentality of non-English speaking children, children with a limited English vocabulary and children with speech defects.

A common type of performance test is the form-board. This test originated with Seguin, and was employed in his work with mental defectives. It has passed through various adaptations, but its essential character has not been materially changed. It consists in fitting wooden blocks of various shapes into forms cut out to receive them. The board may be very simple, or it may be made as complex as desired, not only as to the shape and number of forms used, but also in regard to the blocks to be fitted, since each block may be a single solid piece or composed of a number of pieces, in which case the pieces must themselves be fitted together as well as placed in the proper form. A variation of this test consists of a puzzle in which various parts of a figure or shape are required to be fitted together, as, for example, in the Healy manikin puzzle. Picture puzzle tests have been largely used in recent years as performance tests. In this type of test the various parts of a picture are to be arranged in their proper order. In some instances a picture with parts omitted is given the subject, and he is required to complete the picture by filling in the gaps with the



proper blocks. Another type of picture test consists in arranging a series of pictures in such an order that they tell a complete story. A form of the performance test that is now frequently used is the "maze test." This test was used extensively twenty years ago, in the earlier days of animal psychology when the intelligence of an animal such as a white rat was studied by finding how easily and surely the animal could learn to go through the passages of a maze and get to the center where the food was placed. The Porteus<sup>9</sup> Maze Test for detecting feeble-mindedness is the best adaptation of this test. The maze test when used with human beings is a paper and pencil test of the performance type. The maze is printed on a sheet of paper, and the person tested is required to trace with a pencil the correct way of going through the maze. The form-board test and the various picture puzzle tests have also been adapted to paper and pencil use, but nevertheless retain their essential characteristics as performance tests.<sup>10</sup> Reference has been made to the fact that the performance tests have been adapted to the pencil and paper type of test. One reason for this adaptation is that the test may better be done on pencil and paper than as an actual objective performance. This would be true of the maze test primarily. It is more advantageous on the whole for the subject tested to trace the passages of a maze than to go through an actually constructed maze. It requires a kind of planning and foresight not so easily brought into play in the actual maze. Further, it is much more economical and easily administered.

However, the main reason for reducing the performance test to the paper and pencil form lies in the fact that by this means it can be made a group test rather than an individual test. Now it is quite clear that group tests are necessary in determining the intelligence of large numbers of school children. Individual tests require an enormous amount of time in their actual administration. Further, the difficulty of giving individual tests is very much

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<sup>9</sup>This test, together with that of the Binet-Simon Scale, can be conveniently found in a handbook by N. J. Melville, *Testing Juvenile Mentality*, Second Edition, J. B. Lippincott Co., Philadelphia.

<sup>10</sup>A convenient description of some of the most important performance tests, together with methods of administration and results secured, is found in a book by Rudolf Pintner and Donald G. Paterson, *A Scale of Performance Tests*. D. Appleton & Co., N. Y., 1917.

greater, since they require an elaborate technique and a large amount of training on the part of the one who administers them. Group tests can be administered much more easily, and although the person who employs them should never do so without thoroughly understanding their nature and purpose and without careful training in the exact methods of administration, still the preparation required may be measured in days rather than in months.

### 5. The Development of Group Tests

The development of group tests is of a very recent date. The group tests originally were composed of materials of the verbal type rather than of the performance type and they still continue to be predominatingly verbal, though by no means exclusively so. Necessarily, group tests with children in the primary grades must be of the performance type, and it is advantageous to include in the test of older children some of the performance type.

In the early days of mental testing there was no pronounced call for group tests, since the necessity of testing large numbers of children for the purpose of classification and instruction was hardly recognized. The need was first felt, not in the school, but in the army during the emergencies of the World War. Immediately after the declaration by the United States of hostilities against Germany the American Psychological Association appointed various committees to consider what the psychologists of the country could do to aid the Government. One of the services rendered was the devising of a number of psychological examinations that were later applied to nearly two million men in the American army. Two types of group tests were finally worked out, one known as the Alpha test and the other as the Beta. The Alpha test was verbal in its nature and was employed in testing literates; the Beta test was of the performance type and was designed for illiterates and those who were unfamiliar with the English language. In addition to the group tests nearly eighty-five thousand men were given individual examinations. These individual examinations were the Point Scale, the Stanford-Binet and a Performance Scale examination. The army tests soon proved their worth as an aid in classifying soldiers according to their abilities, in detecting

and segregating or rejecting men of low military value, in prognosticating success of candidates in officers' training camps and the like. Soon after the signing of the Armistice the Alpha tests were made public and in the year following the end of the War were used to test students in a large number of universities, colleges, normal, and high schools. The success of these tests resulted in the construction immediately of a number of group tests of the verbal type for use in schools and colleges and also a little later of group tests of the performance type for use in the primary grades of the elementary schools. The verbal tests have in many instances included one or more tests of the performance type.

## 6. Characteristics of Present Group Tests

Although the Army tests furnish the first instance of the careful preparation, standardization, and use of group intelligence tests, scattered attempts had been made prior to 1917 to employ such tests in an experimental way. The framers of these earlier group tests and of the Army tests were not without guidance in their work. There were, in the first place, suggestions from Binet and those who had revised his work, particularly Terman. Few of the tests in the original Binet scale or in those of later revisions have been taken over bodily into the group intelligence tests, with the exception of those group tests worked out by Terman and Otis, but the principles and the fundamental characteristics of many of the Binet tests have been employed in making group tests. For example, in the Alpha examination the first test is a directions test; an important test in the Binet scale is the determination of ability of the child to execute a series of commands. The second Alpha test is an arithmetical problem test; Binet's original test involved counting and making change, and in Terman's revision we find an arithmetical reasoning test. The third Alpha test consists in selecting from three possibilities the best reason for a statement; while the Binet examination contained no test of this exact character, it provided various simple tests to determine the child's reasoning abilities. The fourth Alpha test presents a list of words associated in pairs. The subject is to determine whether these words are associated by the principle of likeness or opposition. The

Binet examination contained a free association test in which the child is required to name all the words he can think of in three minutes. Test five in the Alpha series is a disarranged sentence test. Words are given out of their proper order and they are to be put in the order that will give them sense. This is almost identical with one of the original Binet tests. Test six of the Alpha examination is a number completion test in which a number series is to be filled out according to the principle indicated in the part of the series given. This has no direct counterpart in the Binet series, which, however, uses counting, both forward and backward, as a test for intelligence. Number seven of the Alpha group is an analogies, or mixed relations, test which has no clear counterpart in the Binet tests. Number eight of the Alpha group is a range of information test; a number of the Binet tests are of this general type, though not of the specific form used in the Alpha test. In the Beta group the test that most closely resembles a Binet test is the picture completion test—a test that requires the addition of parts lacking in the picture.

Although those who have compiled group tests have, then, received substantial aid from Binet and his followers they have obtained help from other sources, notably from the tests devised by psychologists for the purpose of measuring individual differences. Mention has already been made of the work of Galton in England and Cattell in America, whose investigations, as has been pointed out, were primarily along the lines of testing the motor and sensory phases of intelligence. On the whole, the most important intelligence test contributed by psychologists for determining individual differences is the Completion Test of Ebbinghaus, devised by its author in 1905 for the purpose of investigating the fatigue of a school day in the City of Breslau. The original test consisted of a paragraph in which words with syllables omitted were presented to the subject, who was required to fill in the omissions. Terman, in his work with Childs on a revision and extension of the Binet Scale, published in 1912<sup>11</sup> a modification of this test in which a mutilated paragraph was prepared with four progressive degrees of difficulty. In this paragraph whole words were omitted rather

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<sup>11</sup>See *Journal of Educational Psychology*, Vol. III, p. 199.



than syllables. Terman says that this test appears "to bring to light fundamental differences in the thought processes." He found the principal objection to the test to be the difficulty of standardizing it. Such a standardization has since been worked out by M. R. Trabue in his Completion-Test Language Scales.<sup>12</sup> This scale has further been restandardized by T. L. Kelley. In its present form it seems to be one of the most reliable single measures for intelligence that we possess. It is particularly suitable for determining some of the more complex forms of mental ability.

Although Terman was instrumental in improving the completion test, he does not include it in the Stanford Revision. The nearest approach to this test is his dissected or disarranged sentence test. Of it he says, "This experiment can be regarded as a variation of the completion test. Binet tells us, in fact, that it was directly suggested by the experiment of Ebbinghaus. As will readily be observed, however, it differs to a certain extent from the Ebbinghaus completion test. Ebbinghaus omits parts of sentences.... In this test we give all the parts and require the subject to relate given fragments into a meaningful whole."

Another test suited for discovering some of the more complex forms of intelligence is the Analogies, or Mixed Relations, test first used a decade ago by Cyril Burt in England. This test consists essentially in presenting three words in a series, the first and second of which bear a certain relationship. The examinee's task is to supply a fourth word that bears the same relationship to the third word as the second does to the first. The test is usually stated in the form of a proportion, thus: *Admire: Friends:: Detest:—?* The analogies test is frequently adapted to the abilities of little children and illiterates by substituting pictures for words.

The analogies test is a sample of a large group of tests, classified under the general name of "association tests." Some of these tests in their origin date back many years. As early as 1899 we find an article by J. McK. Cattell and Sophie Bryant on "Mental Association Investigated by Experiment."<sup>13</sup> The uncontrolled as-

<sup>12</sup>*Teachers College Contributions to Education*, No. 77, 1916.

<sup>13</sup>See *Mind*, Vol. XIV, pp. 230-250.

sociation method was used by Binet in testing how many words a child could name in three minutes. Controlled association tests are frequently used to-day in group tests of a verbal character. They include, besides the analogies test, associations of part with whole or *vice versa* (example, *chair-leg*); the genus with the species, or the reverse (example, *man-Indian*); a word with its opposite (example, *love-hate*); and other more complicated relationships. One of the most important of such relationships now frequently employed in group psychological testing may be designated as a classification test of which the following is an example:

Think how the first three words below are alike and then underline the one word of the last five that most resembles the first three: *ivory, snow, milk—butter, rain, cold, cotton, water.*

This test can easily be varied by substituting pictures or designs for words.

The substitution test, which determines the rapidity and accuracy of learning by substituting for one set of characters another according to a key, is also found in group intelligence tests. The intelligence of the person is tested by determining the progress made in learning to make these substitutions. Dearborn,<sup>14</sup> in 1910, describes such a test in an article discussing experiments in learning. In Dearborn's experiment numbers were substituted for letters combined into words in one test, and in another symbols were substituted for numbers. Dearborn names this test a "practice experiment" and he plots curves of learning based on the scores obtained.

Vocabulary tests, which are sometimes employed in the group tests of to-day, have been used by psychologists for many years. As early as 1891 Kirkpatrick investigated the "number of words in an ordinary vocabulary."<sup>15</sup> In more recent years Kirkpatrick has extended his investigations, and important studies have been made by Whipple, Ayres, and Babbitt among others. Terman included a vocabulary test in his revision of the Binet Scale and finds that this test shows a fairly high correlation with intelligence. The

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<sup>14</sup>*Journal of Educ. Psychology*, Vol. I, pp. 378-384.

<sup>15</sup>*Science*, XVII, pp. 107-8.



vocabulary test is in reality a form of the range of information test now frequently employed in group testing.

Psychologists have given a good deal of attention to various forms of memory testing, but these tests play an inconspicuous role in the group tests of to-day. Rote memory, in particular, does not seem to bear a very close relationship to the more significant aspects of intelligence, though, of course, memory is basal to all learning.

The directions test as a response to verbal commands was, as we have seen, used by Binet in his scale. As a paper and pencil test it was put into form sometime before the war by Woodworth and Wells.

The cancellation test, in which certain digits or letters of the alphabet arranged in irregular order on a page are crossed out, has engaged a considerable share of the attention of psychologists, but has exhibited practically no relation to intelligence in its more developed forms. It is not employed in group tests at present.

Although the great majority of the mental tests found in the group tests now in use have been derived more or less explicitly from the work of Binet and other psychologists, two frequently employed tests at least are directly connected with attainment in school subjects. One of the common group tests now used is an exercise in the fundamentals of arithmetic or in simple arithmetical problems. The test involves concentrated attention, mental alertness and a fair degree of rational ability in some instances. The scores obtained show a fair degree of relationship to general intelligence.

The reading tests, particularly as worked out by Thorndike,<sup>16</sup> measure successfully some of the higher mental abilities. This test is of course very definitely related to one of the most essential requirements in school progress, namely, the ability to grasp and analyze the meaning of the printed page.

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<sup>16</sup>Thorndike tests reading ability by requiring the subject of the test to read a paragraph and then answer certain questions concerning it with the paragraph still before him. Other reading tests of this character involve the reproduction of a paragraph from memory after the reader has perused it for a definite length of time.

This brief description of the origin of some of the most important elements in the group tests now used gives a general idea of the level of intelligent response required in performing the tests. It will be seen that on the whole the more complex factors of inference, judgment, and logical analysis are not extensively involved. An examination of nine of the most commonly used group tests shows that the most frequent single test is that of range of information, involving no rational ability; another favorite test is that of fundamental operations in arithmetic or the solving of simple problems. The opposites test is likewise frequently found. Among the more difficult tests logical selection and classification are often employed, as well as sentence completion. The analogies test is used in three of the nine sets.

#### IV. INTELLIGENCE AND CHARACTER—CHARACTER TESTS

It has already been pointed out in this discussion that intelligence tests measure not only intellectual ability, but also opportunity to learn and interest in learning. There are several other factors involved in the ability to perform these tests. Chief of these is the "will-to-do," the capacity to hold the mind down to a task and keep the attention alert and concentrated in the face of outside interests and distractions. The will-to-do is, to an extent, involved in the execution of an intelligence test, particularly if it is at all difficult and extended in scope, since the willingness to hold the mind to a task is here concerned. But it is not only in the performance of the test that this factor enters. It plays an important part in the acquired ability which enables the person tested to comprehend the materials presented, for, as has already been said, an intelligence test to a considerable degree measures ability to learn by measuring what has already been learned, and this acquired knowledge has been gained not merely through intelligence but through willingness to work as well. A child's success in school is due to his intellectual endowment in part, but only in part. His character and temperament are likewise important factors in his success or failure. Will-to-do a task bulks large in the total school performance. So it would seem that the present so-called intelli-

gence tests are in a measure character tests as well, but of course only in a very small and limited degree.

### 1. The Will-Profile Test

The attempt to determine character as independent of intelligence is scarcely in its beginnings. However, two fairly extensive character tests have been so far devised. The first of these is the so-called "Will-Profile Experiment" of Professor June E. Downey, of the University of Wyoming.<sup>17</sup> It is described as a tentative scale for measurement of the volitional pattern. It is for the most part a study of the variations of the handwriting of an individual under diverse conditions. Among the factors said to be tested are: speed of decision; the coordination of impulses under the mental set of both speed and accuracy; freedom from inertia as shown in speed in warming up, ability to maintain a high speed, etc.; ability to inhibit a motor impulse; flexibility of movement as shown in ability to disguise and to imitate handwriting; care in details; amount of motor impulsiveness; assurance; resistance to opposition; and perseverance. It is quite evident that this list includes a number of general characteristics that show the nature of the will of an individual. Through a single motor expression (handwriting) appearing in an experimental situation, conclusions are drawn as to the will tendencies of the individual as a general factor. These tendencies are supposed to express themselves in concrete situations.<sup>18</sup>

### 2. The Voelker Test

In contrast to the general character of the experiments of Professor Downey is the very concrete investigation of Dr. Paul F. Voelker,<sup>19</sup> who attempted to find out the truthworthiness of boys in actual life situations. Among the qualities that he has sought particularly to measure are: tendency to exaggerate; suggestibility; willingness to receive help in the solution of a problem when

<sup>17</sup>*University of Wyoming Bulletin*, Vol. XV, No. 6A (1919).

<sup>18</sup>An adaptation of this test has been worked out by the Bureau of Personnel Research, Carnegie Institute of Technology and published as Test IX.

<sup>19</sup>See *Religious Education*, Vol. XVI, No. 2 (1921), pp. 81-83.

such help is forbidden; punctuality in returning a borrowed object according to a promise; honesty in money matters as indicated by whether the boy will keep over-change given him in purchasing an article; willingness to accept a "tip;" his truthfulness under various conditions, and so on. Dr. Voelker found that the scores obtained by boys in these tests were largely influenced by instruction and environment. He found little agreement between a boy's intelligence and his standing in the tests for trustworthiness.

### 3. The Liao Tests

As another example of an attempt to determine character through specific tests may be mentioned the work carried on by S. C. Liao at Brown University. Liao prepared a moral judgment scale in the form of a "best reasons" test. A statement is made and under it are placed five reasons for the truth of the statement. The subject tested is required to indicate for every statement the best reasons. Under each statement one reason is moral in its nature, the other reasons being of a general or personal character. An example of this scale follows:

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|---|--|
| <p>I. It is wrong not to work.</p> <ol style="list-style-type: none"> <li>1. Idle people are called lazy.</li> <li>2. Idle people earn no money.</li> <li>3. Idle people are discontented.</li> </ol> <p>X4. Idle people live on the works of others.</p> <ol style="list-style-type: none"> <li>5. Good men tell us we should work.</li> </ol> <p>II. A kind word is better than a harsh word.</p> <p>X1. A harsh word makes others unhappy.</p> <ol style="list-style-type: none"> <li>2. A harsh word makes us disliked.</li> <li>3. President Roosevelt said, "Speak softly."</li> <li>4. A harsh word is generally a hasty word.</li> <li>5. Kind people succeed in life.</li> </ol> <p>III. We should all try to get a good education.</p> <ol style="list-style-type: none"> <li>1. Educated people make the best citizens.</li> </ol> | <ol style="list-style-type: none"> <li>2. They do better in business.</li> <li>3. They get the most out of life.</li> <li>4. Pupils are required to go to school.</li> <li>5. It is a pleasure to know a great deal.</li> </ol> <p>IV. Our school is a fine school.</p> <ol style="list-style-type: none"> <li>1. The principal says it is.</li> <li>2. The teachers do not find fault with us.</li> <li>3. We are taught to help one another.</li> <li>4. We have a fine ball team.</li> <li>5. We are seldom punished.</li> </ol> <p>V. If you have money you should give some to charity.</p> <ol style="list-style-type: none"> <li>1. It will make you feel happy.</li> <li>2. It will help those who are in want.</li> <li>3. Those you help will like you.</li> <li>4. People will think well of you.</li> <li>5. The minister tells you to.</li> </ol> |
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- VI. America is the best country to live in.
1. It is just to all the world.
  2. It has wonderful wealth.
  3. Its people are intelligent.
  4. It is easy to make a good living in America.
  5. Americans are respected by others.
- VII. We should do nothing to injure others.
1. Our school books tell us to be kind to everybody.
  2. Kindness makes other people happy.
  3. We wish others to respect our rights.
  4. We don't want to be called selfish.
  5. Injuring others is sure to get us into trouble.
- VIII. When you have a contagious disease, you should stay at home.
1. By so doing you will not expose others.
  2. You are sure to get well sooner.
  3. You will obey the regulations of the Board of Health.
  4. You will be criticised if you go out.
  5. Your doctor's bill will be less in the end.
- IX. Doctors should be well paid.
1. They spend a long time in getting an education.
  2. They work long hours.
  3. They are intelligent men.
  4. They are of great service to others.
  5. Their profession is considered a good one by all people.
- X. Lincoln is an example for all to follow.
1. He educated himself.
  2. He has a leading place in history.
  3. He had charity toward all and malice toward none.
  4. He became President of the United States.
  5. He had great wisdom.
- XI. You should go to church.
1. It is a good way to begin the week.
  2. It makes you kinder to other people.
  3. You meet many good people.
  4. The minister tells you many important things.
  5. It makes you familiar with the Bible.
- XII. To eat more than one needs is wrong.
1. It deprives others of what they need.
  2. The government urges us to save food.
  3. Food is expensive.
  4. Over-eating injures our health.
  5. It may make us gluttons.

In all school grades tested the children on the whole considered the moral reason the best reason, though the difference in favor of the moral reason is not great in the fourth grade. It, however, increased constantly and decidedly through the grammar grades, the high school, and among college students. Whatever may have been true of the conduct of the children, it was quite evident that their judgment with regard to a moral situation became increasingly accurate as they advanced in years and experience.

Besides investigating the moral judgment of children, Liao studied their intellectual honesty. Those tested were given a vo-



cabulary of fifty words arranged in order of difficulty, with instruction to check off all the words they knew sufficiently well to use in a sentence or to define. After the pupils had checked the words they were required to define the last ten that they had checked. It was found that there was a wide variation in the number of words thus checked and also in the number correctly defined or used. There was a fairly high positive relation between the intellectual honesty of the pupil and his school record, but none between the number of the words checked and his care in checking them.

## V. SUMMARY

In the foregoing pages the attempt has been made to explain and define the term "general intelligence" as it is commonly used in the field of mental testing, and to show how it is possible to measure innate intelligence—also in this connection to point out certain misunderstandings and dangers involved in the attempt to determine the innate intelligence of an individual or group of individuals. Further, a general sketch of the origin and growth of tests to measure intelligence, culminating in the present group tests for intelligence, has been presented. Particularly, in this connection the general characteristics and forms of intelligence tests have been indicated. Finally, the fact has been emphasized that intelligence tests alone are not sufficient to show the probable efficiency of an individual or his success in school or in life, since character as well as intelligence is a vital element in such success or failure. A brief outline of the work so far done in character testing has been added. In conclusion the following summary of the most important points included in the above discussion may be helpful.

1. The term "general intelligence" signifies an innate capacity or group of related capacities to acquire intelligence in specific situations of life. It can be identified closely with learning ability.

2. This ability is measured by determining the relative degree to which a group of individuals, or a single individual in comparison with a group whose attainment has already been measured, succeed in their scores in tests constructed in such a way that the materials used are of common knowledge and common interest to those so tested.

3. Little or no value can be attached to the results of tests in which the individuals tested vary in any marked degree as to their opportunity and desire to become familiar with the materials of the test employed. Hence children of different social and economic status may score quite differently in such tests not because of any real difference in native intelligence but because of such differences in home surroundings that some are favored while others are handicapped, particularly as far as use of the English language is concerned. Also boys and girls, because of their different interests in the world about them may make quite different average scores in tests as a whole or in various elements included in tests, without differing essentially in native capacities.

4. Intelligence tests thus measure not only native intelligence but interest as well, and to a certain extent character qualities, since learning involves not only intelligence and interest, but also earnestness of purpose and will-to-do.

5. The pioneer in intelligence testing was the French psychologist Binet who, with the assistance of the French physician Simon, drew up the first set of intelligence tests. This was done with a view of determining the number of feeble-minded children in the schools of Paris and segregating them for the purpose of instruction. The Binet tests have since his time been extensively revised, particularly in America, and used for the purpose of testing normal children as well as those of subnormal intelligence. The most extensive revision of these tests has resulted from the work of Terman in California, who has compiled the Stanford-Binet series.

6. Binet, in his scale has a group of tests for each age and a child's intelligence is expressed by indicating the distance along this scale which he can go, thus determining his mental age, and then comparing this mental age with his chronological age (age in years). If his mental age and his chronological age are the same, he is of normal intelligence. If his chronological age is considerably greater than his mental, then he is subnormal. If, however, his mental age is considerably in excess of his chronological age, he is supernormal.

7. In the Stanford scale the mentality of the child is expressed by his I. Q. (intelligence quotient), secured by dividing his

ascertained mental age by his chronological age. Unity means normality; a decimal considerably below unity means subnormality; one considerably above indicates superior intelligence.<sup>20</sup> While the mental age of the child may be used in comparison with his chronological age for purposes of classification, the I. Q. alone cannot be thus used, since children of the same I. Q. may vary greatly in their mental ages as well as in their chronological ages. In classifying children according to I. Q.'s both mental and chronological age must be taken into account.

8. While the Binet tests and their revisions are the most reliable measures of the intelligence of a child that we possess, they require a large amount of time in their use (since they are individual tests), and considerable skill in the technique of administering. The group intelligence tests, which have been developed since 1917, can be given in very much less time, since many children can be tested at a single sitting, and since these tests require much less skill in their administration than do the Binet tests. Therefore, when considerable numbers of children are to be tested, the group tests may legitimately be used. However, when there is doubt in individual cases, some form of the Binet test or individual performance tests should be provided. These usually give more accurate measures than do the group tests. Group tests are advantageously used for gross results; individual tests, for finer distinctions.

9. Finally, it should be remembered in all cases of mental testing that the employment of these tests is merely a means to an end, not an end in itself. Mental tests furnish a certain amount of valuable data, which, when used in connection with other information, such as school attainment, opinions of teachers in regard to children's interests, mentality, and the like, are helpful in classifying pupils in various grades and subjects, in giving them educational advice and direction, and in understanding them as individuals rather than as mere representatives of a group. Administered in a mechanical way and not supplemented by the personal touch, they are often of little value and may be even positively harmful.

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<sup>20</sup>In practice the I. Q. is usually obtained by multiplying the obtained quotient by 100.

## CHAPTER III

### STATISTICAL METHODS APPLIED TO EDUCATIONAL TESTING

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The purpose of this chapter is threefold: first, to describe for teachers and administrators common and elementary methods of treating test data (Section I); second, to summarize the newer and more elaborate statistical methods for research workers (Section II); third, to present an annotated bibliography which will put the advanced student of educational statistics in touch with the new methods (Section III).

#### SECTION I.—ELEMENTARY METHODS OF TREATING TEST DATA<sup>1</sup>

##### I. SOME IMPORTANT STATISTICAL FACTS

If you give an intelligence test to several hundred school children and draw a graph of your results you will arrive at a figure something like Diagram I-1.

If you give a reading test, say the Burgess Test, your figure will closely resemble Diagram I-2.

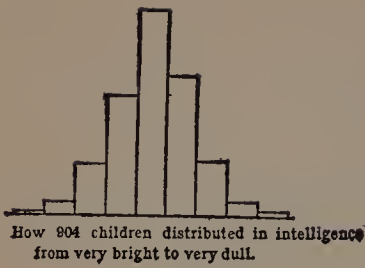
If now you should test your pupil's ability to add (or subtract, or multiply, or divide, or to do algebra problems), you would obtain a graph that would look something like Diagram I-3.

In the same way if you should measure any physical trait like stature, or weight, or strength of grip, or girth of chest, or length of forearm, or foot, or what-not, you would arrive at a graph which would look something like Diagram I-4.

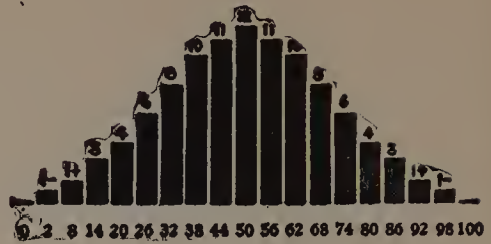
You have now seen four graphs which are typical of the traits with which the school commonly deals. There are three significant

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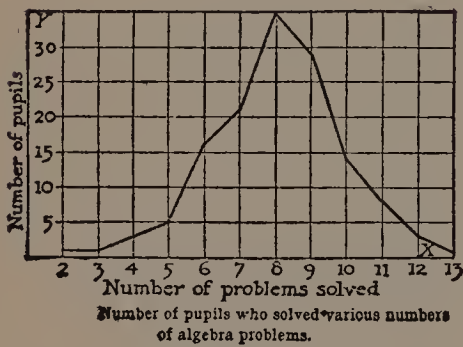
<sup>1</sup> Section I is based upon a forthcoming *Primer of Statistics for Teachers*, to be published by Houghton Mifflin Co., author's copyright.



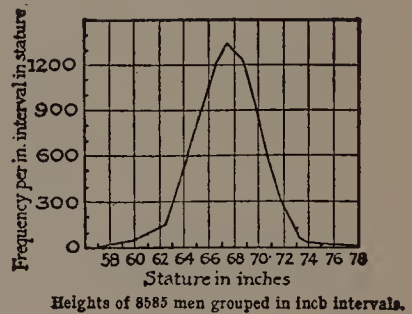
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No. 3



No. 4

DIAGRAM I.—TYPICAL EXAMPLES OF DISTRIBUTION OF MENTAL AND PHYSICAL TRAITS

facts about these distributions which are at the basis of the schoolman's use of statistical methods:

1. Children vary widely in ability.
2. Graphs of their ability show the same general shape.
3. A large proportion of their abilities cluster so closely around a given value that it typifies the "central tendency" of all.

1. *School children vary widely in ability.* In recent years, however, school people have improved their methods of *measuring* pupil's abilities. Instead of "judging" them, "marking" them on a purely subjective basis, they are carefully testing their abilities to do certain standard tasks. The difficulties of the tasks (examples in arithmetic, words to be spelled, passages to be read, or what-not) have been carefully determined, by having them worked by



thousands of children. Thus, since the tests are arranged on the basis of known difficulties, and since the tests have been given to large numbers of children, we speak of them as "standardized."

So, charts of pupils' abilities like those in these diagrams are very significant. They show wide differences in such physical traits as stature, in such muscular skills as handwriting; and in various mental abilities like ability to read silently, to solve problems in physics, algebra, etc.

Notice the differences in the *range of ability* in the different traits. In stature, the range of differences is relatively small, although apparently great, 57 inches to 77 inches. In handwriting, in reading, algebra, arithmetic and such subjects, the extreme differences are very much larger. The best pupils do 6 to 12 times as well as the poorest. One can find in a third-grade reading class of 30 pupils, some who read as slowly as 30 words per minute, and others who read as rapidly as 360 words per minute—12 times as fast.

We need not multiply cases. Schoolmen are agreed on this outstanding fact: children whom we have tried to teach in the same section vary widely in ability. Administrators are asking frankly whether it is not futile to try to fit one course of study and one kind of machinery to such gross differences in capacity.

2. *Graphs of pupils' abilities are of much the same shape.* Notice the similarity in shape in all of these graphs, how the curve is very high at the middle and low near each end, how it shades off at the same rate on each side; in other words, how the mediocre pupils are most frequent and the exceptional are less and less frequent, how the very unusual are few and far between.

The *shape* of the graph is very important. It shows how abilities distribute between the very large differences to which we have referred in the preceding section. About one hundred years ago people began collecting physical measurements of human beings. They measured the stature of thousands of men. They measured the circumference and breadth of heads, the length of forearm, weight, chest expansion, and many other anthropometrical traits.

Later when psychological laboratories developed, mental measurements were taken. Not so many cases could be gathered, but

yet enough to give helpful results. Again the recurrence of the same characteristics in the distribution—the piling up of measurements of “mediocrity,” the greater and greater infrequency of “unusual people.”

3. *Distributions of measurements of intelligence show a “Central Tendency” which is typical of all the measurements.* This is the third striking fact about the abilities of school children. Study the typical figures in Diagram I. Although people vary widely, it is significant that the great mass are much alike. One might generalize from what he finds in the vast accumulation of scientific measurements and from his practical school experience something as follows:

Pupils in school tend to group themselves in a large central mediocrity, flanked on either side by a small but important group of superior and inferior ability. Occasionally one finds exceptional children, brilliant or stupid. These are relatively rare. It is this large, rather compact mediocrity that leads us to speak of the “central tendency” of a distribution.

## II. HOW TO REPRESENT SCHOOL STATISTICS BY FREQUENCY TABLES

When you have tested the intelligence or some specific ability of pupils your first task is to set up the data so that the reader can understand them. There are two ways to do this. The clearest way

TABLE I

Pupils	No. ex. right in 3 minutes	Pupils	No. ex. right in 3 minutes
Adams, Ada .....	17	Lanterman, Anne .....	16
Albright, J. H. ....	11	Lowenthal, Louis .....	15
Bass, Dan .....	13	Manning, Fred .....	10
Brownell, Bessie .....	10	Marston, Mary .....	11
Carlson, Anna .....	18	McMurray, Mabel .....	12
Crowther, Jas. ....	4	Mendenhall, Carl .....	15
Dawes, Janette .....	9	Metz, Pauline .....	14
Evans, Isabel .....	11	Owens, Edward .....	12
Finch, Geo. ....	12	Ranney, Geo. ....	5
Ford, Wm. ....	11	Reed, Katherine .....	3
Harris, David .....	9	Smith, John .....	14
Herrick, H. E. ....	8	Wright, Evelyn .....	13
Hogan, John .....	6	Wright, Betty .....	11
Johnson, Emma .....	19		

is to make a graph. To do that it is necessary to make a table of the data—that is, to have the numbers arranged in some orderly fashion.

You wish to report the scores that your pupils made so that some one else can clearly understand them. You first make a tabulation of the scores with the names of the pupils. The data might appear something like those in Table I. These are not clearly arranged. Your reader wants to know how many made 3, 5, 10, 12, 16, 18, etc. He wants a compact summary with the scores arranged from largest to smallest and with the number of pupils given who made each score.

So you make a *Frequency Table*, and it looks like Table II.

TABLE II

Test Scores Made by Pupils	Number of Pupils Who Made Each Score
19	1
18	1
17	1
16	1
15	2
14	2
13	2
12	3
11	5
10	2
9	2
8	1
7	0
6	1
5	1
4	1
3	1
2	0
N = 27	

### HOW TO PLOT A FREQUENCY DIAGRAM

Now to graph the data of the frequency table keep in mind these simple rules:

*First:* Draw a horizontal line (line OX in Diagram II) and lay out on it the units of the distribution 1, 2, 3, etc. These units are in terms of scores made on the tests. Place the points as far apart

as you can and yet get them all on the paper. This line is the *scale* of measurements of the trait or the fact you are considering.

*Second:* Draw a vertical line (like OY in Diagram II) through the extreme left end of the horizontal line. Divide this line into a number of units. Remember you are going to represent by *vertical distances* above the horizontal base-line the *number* of individuals or cases. So, to tell how far apart to put your points, find the largest number of cases in the *frequency* column of the table and fit the number of cases to the number of squares that you have vertically above your horizontal base-line. It is better to make the graph steep like Diagrams I-1 to I-4.

*Third:* Having the units laid off on each line, plot the number of cases by locating points on the cross-section paper above the appropriate points on the base-line. Diagram II shows how it is done for the data of Table 2. Connect the points. This gives a picture or graph of the data. This is sometimes called a *frequency polygon*, or *line-graph*.

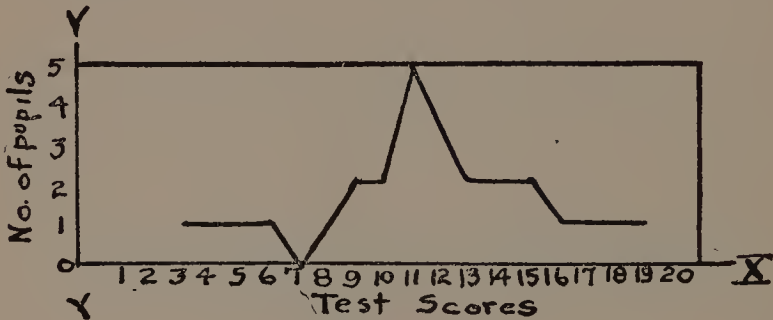


DIAGRAM II

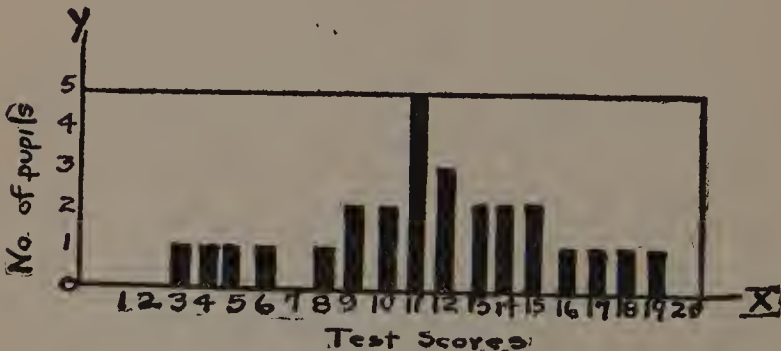


DIAGRAM III

*The Bar Graph.* It is clearer to some persons to use a *bar graph*. To do this, merely draw a vertical line at each point on the base-line long enough to represent, to scale, the number of cases at that point. These can be made to stand out a little more clearly if the lines are widened to make columns. Still more so if they are blackened like Diagram III.

### HOW SINGLE "AVERAGE" VALUES HELPFULLY DESCRIBE DISTRIBUTIONS OF DATA

Study the distributions in Diagram I. Notice how the cases distinctly concentrate near the middle of the scale. This hump in the graph—this bunching of measures—enables us to describe distributions very easily. We could say, from Diagram I-2, that the "middle half" of the pupils read between 38 and 62, or from Diagram I-3, that mediocre pupils solve from 6 to 10 problems in algebra in five minutes. That is, we can pick out the middle groups in our distributions and tell what they did on our tests.

But this is awkward. We have to use two or three numbers to picture any one group. What we really need is a single number to describe the group. It very frequently happens that we wish to compare two distributions of test scores (*e.g.*, from different classes or schools or school systems) or of school marks, or some other measures of children. We have already studied the first method of summarizing and of comparing such data—preparing a frequency table and a frequency graph. But the simplest types to pick out and compare are the "averages."

*The "average" partially describes the distribution. It is a single measure which stands for the central tendency of the data.* Let us study a case. Two classes were tested with an algebra test. Diagram IV presents the data as a bar-diagram. Which class is the better? What is the general tendency of the achievements in the two classes? Is the "Central Tendency" of one class better than that of the other? What does "Central Tendency" mean to you? Does it mean the general "feeling" that you have that the bunching of the measures in Miss H's class occurs near a lower score than that in Mr. D's class? That is the sense in which it is



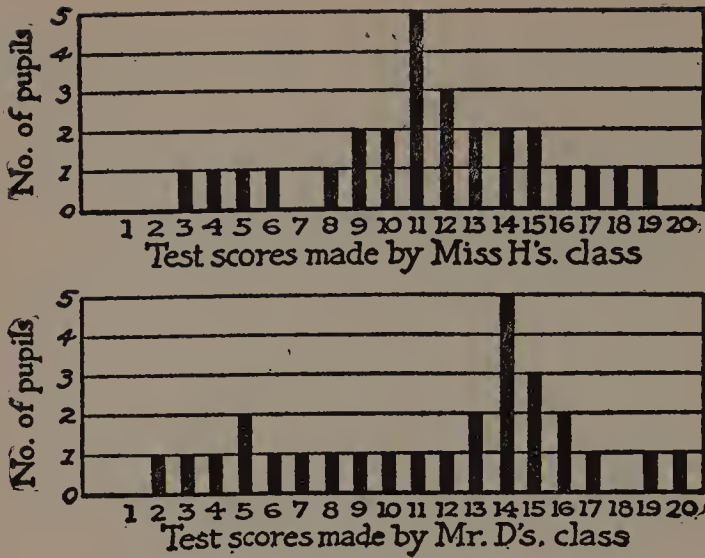


DIAGRAM IV.—GRAPHIC COMPARISON OF SCORES MADE BY TWO CLASSES IN A MATHEMATICS TEST

used by statistical workers to describe the concentration of measures at or around a particular value.

Note how much more definite the comparison of achievement can be made by means of some single average value in each distribution. See how, in Diagram IV, the cases concentrate so decidedly about 11 in one class and 14 in the other that the single central values 11 and 14 describe rather well the central tendencies of the two distributions. Instead of depending on a general feeling of concentration of measures we refer to a single middle or average number which is most typical of the concentration.

There are three such “average” values which are commonly used to describe distributions: (1) the mode, or commonest measure; (2) the median, or middle measure; (3) the arithmetic mean, commonly called the “average.”

1. *The Mode: The Commonest Measure.* What is the most conspicuous feature of the various distributions we are comparing? The tall bars in Diagram IV? The high point on the curve in Diagrams I-1 to I-4? What does the extreme height mean? It means “the greatest frequency.” The value which occurs most

frequently is called *the mode*—*la mode*, “the fashion.” The modes of Diagrams I-2, I-3, and I-4 are respectively 50, 8, and 67. The mode of Miss H’s class is 11, that of Mr. D’s class is 14.

Remember that *the mode is the value that occurs most frequently*.

2. *The Median: The Middle Measure.* The median is another average value that is easily determined and that “stands for” all of the measures in the list rather well. It is easiest to *think of the median of a distribution as the middle measure*, and this is sufficiently accurate for practical interpretations.

a. *When there is an odd number of cases.* For example, if you had a distribution of 11 measures, the median could be thought of as the value of the sixth measure. The approximate median for Miss H’s class is 11 because there are 27 measures and the approximate median is the value of the 14th measure.

b. *When there is an even number of cases.* There is here no middle number. In such an instance the median is taken as the value midway between the values of the two middle cases. Thus, the simple rule is to *find the value of the middle case or the value halfway between the two middle cases*.

c. *When the data are so frequent and the values so different that they have to be grouped.* Study Table 3. No single middle measure stands out; neither can one distinguish any two middle measures. Sixty-eight measures were so closely of the same value (ranging from 90 to 100), that to economize time and labor, they were grouped together in one interval of 10 units. For very rough purposes you might call the midpoint of the interval the median. In most cases your interpretation of the data would not be different by this method from what it would be were you to compute the median very precisely.

However, the precise computation is not difficult. It consists of finding the value on the scale that exactly cuts the data in two equal parts. In Table 3 there are shown 373 cases. Half of these, 186.5, fall on each side of the median. To locate the median, count the number of cases (up the scale or down) to find the interval which includes the value that divides the distribution in two. Thus, in Table 3, counting, say, up from 20.0–29.99 at the end of the

table we get:  $8 + 10 + 17 + 21 + 33 + 38 + 54 = 181$ . Since there are 68 cases in the next interval and these added to 181 make more than half (186.5) we know the median is somewhere in this interval. Exactly where? To find out, we assume that the 68 cases are evenly distributed over the 10 units of the interval. Then

TABLE III.—TO ILLUSTRATE THE COMPUTATION OF THE MEDIAN

Intelligence Scores	f	
150 - 159.99	6	
140 - 149.99	9	
130 - 139.99	12	
120 - 129.99	25	
110 - 119.99	30	
100 - 109.99	42	
90 - 99.99	68	Md = 90.81
80 - 89.99	54	
70 - 79.99	38	
60 - 69.99	33	
50 - 59.99	21	
40 - 49.99	17	
30 - 39.99	10	
20 - 29.99	8	
		N = 373

the middle point is evidently  $\frac{5.5}{68}$  of the way up that interval. It is located at a point  $\frac{5.5}{68} \times 10$  units above 90; that is, at 90.81.

*Check.* If you count down instead of up, of course, you get the same result. That is  $6 + 9 + 12 + 25 + 30 + 42 = 124$ . We need  $\frac{62.5}{68}$  of the interval 90—100 to locate the median value.

Hence  $\frac{62.5}{68} \times 10 = 9.19$ , and this subtracted from 100 gives 90.81.

The steps involved in computing the median with grouped measures are, then, these:

1. Divide the total number of measures by 2.
2. Count up (or down) the number of measures included in the class-intervals TO the interval that contains the median.
3. Subtract this number from  $\frac{N}{2}$  (half the number of measures).
4. Divide the remainder by the number of measures in the interval which contains the median.

5. Multiply by the number of units in the class interval.

6. Add this number to the value of the lower limit of the interval. Use whole numbers 80.0, 75.0, 70.0, etc., instead of 79.99, 74.99, 69.99, etc. If the counting is done from the upper end, subtract from upper limit of the interval.

3. *The Arithmetic Mean, or "Average."* There is a third measure, better known, but less easily used: the *arithmetic "average."* The technical name for this is "*arithmetic mean.*" No doubt it is the value we all have in mind when we say "on the average so and so is true." This is the most familiar average value, because it is the one we have been taught to use in school.

a. *The "simple average."* In the elementary school we teach children how to compute both the "simple average" and the "weighted average." You will recognize the difference from some examples.

Thus the arithmetic mean of 8 and 4 is 6. The mean of  $8 + 5 + 2$  is 5. The mean of  $7 + 8 + 4 + 3$  is  $22 \div 4$ , or 5.5. So, we say the arithmetic mean or average is *the sum of the values of the measures divided by the number of measures.* We call this form the simple average; each different value occurs only once.

b. *The weighted average.* Frequently you will want to compute an average when the different values occur more than once, as in Table IV. This illustrates how the "weighted average" is computed.

The word rule for finding the weighted average is the same as for the simple average: *Divide the sum of the values of all the*

TABLE IV

No. of examples worked	Number of pupils who worked each number of examples, i.e., the "frequency" (f)	Products: The values $\times$ the corresponding frequency
17	2	34
16	1	16
15	5	75
14	8	112
13	16	208
12	7	84
11	4	44
10	3	30
9	1	9
N = 47		47)612(13.02

measures by the number of measures. That is, multiply each value (17, 16, 15, etc.) by the number of times it occurred (2, 1, 5, etc.) and divide the total (612) by the number of measures (47). This gives the average, 13.02.

How to compute the average when the data are grouped in class-intervals. The intelligence scores of 373 children in a school were as follows:

TABLE V.—TO ILLUSTRATE THE COMPUTATION OF THE ARITHMETIC AVERAGE

Intelligence Scores	f	Mid	f m
		Point m	
150 - 159.99	6	155	930
140 - 149.99	9	145	1305
130 - 139.99	12	135	1620
120 - 129.99	25	125	3125
110 - 119.99	30	115	3450
100 - 109.99	42	105	4410
90 - 99.99	68	95	6460
80 - 89.99	54	85	4590
70 - 79.99	38	75	2850
60 - 69.99	33	65	2145
50 - 59.99	21	55	1155
40 - 49.99	17	45	765
30 - 39.99	10	35	350
20 - 29.99	8	25	200
N = 373		373) 33355 (89.42	

How can the average be computed for such a case? The actual values of the scores are hidden within the class-intervals. We have to make an assumption regarding the values of the measures. Each interval, 150-159.99, 140-149.99, 130-139.99, etc., has a mid-value; 155, 145, 135, etc. So, for convenience, *we assume that the value of each measure in an interval is the same as the mid-value of the interval.* Of course, that is not really the case. The ten scores in the interval 120-129.99 are 120, 121, 122, 123, 124, 125, 126, 127, 128, and 129; we *call* each one 125. But this does not change our average much, for the true average of these scores is 124.5. From this point we compute the arithmetic average exactly as we do the ordinary weighted average; that is, we multiply the value of the midpoint of each interval by the number of cases in it, total these products and divide by the total number of cases. Table V illustrates this.



4. *Which average value should be used: mode, median, or mean?* Two questions must be answered: which value describes the entire distribution best? Which value is easiest to compute?

a. *Which value describes the distribution best? No one value can completely describe a distribution.* This fact is clear about all statistical distributions, no matter how widely scattered or how compact the data are. Look at Diagram I-3. The average is 8. But the highest score was 13, while one pupil made as low a score as 2. Certainly no *one* number can completely typify such a distribution of statistics.

This is not an exceptional case. It is typical. Look at the other distributions. What one number can give a mental picture of the great differences between the extremes of the data? No one number, of course. This should be kept clearly in mind in all statistical work. Yet, we need single numbers or at most, a few numbers, to represent different distributions and to enable us to compare them.

*What number will serve us best?* The answer to the question depends on an important factor—the way the data are scattered over the scale—that is, the *shape of the distribution*. Now, an important fact is that most educational distributions are very symmetrical in shape. For such symmetrical distributions of data the mode, the median, and the mean doubtless will all be nearly the same value. It is this fact of the close equivalence of the values of the median and mean that leads to the conclusion that (for most distributions of data on human traits) *one average value gives as good a description as the other*. And for the simple reason that they are nearly the same value. But it is also generally recognized that the *mode* is not a desirable average to use in accurate work, because it fluctuates too much with slight changes in data.

b. *Which average value is the easier to compute: median or mean?* Here the decision is clear and definite. The median is more quickly and easily computed than the arithmetic mean. Hence, for distributions which are reasonably symmetrical, since median and mean describe the distribution equally well, use the median because it is more easily computed.

But many administrative facts do not give symmetrical distributions, for example, the distribution of salaries of teachers, ages of pupils, attendance of pupils, receipts and expenditures of school systems. Practically no distribution of this type of facts is symmetrical. Which average would then be the better one? We can answer it by answering the question: Which one describes the data in the entire distribution the better? If accurate comparisons are being made, it is better to use both mean and median.

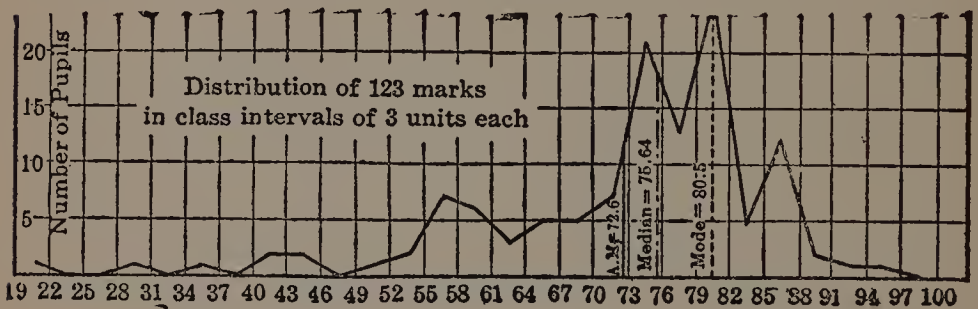


DIAGRAM V.—TO ILLUSTRATE THE COMPARISON OF THE AVERAGE AND THE MEDIAN WITH A SKEWED DISTRIBUTION

For some kinds of distributions the median perhaps sums up the situation better than the mean: for example, a distribution with a long tail containing a few measures of extremely low value (see Diagram V). In computing the arithmetic mean, one high value offsets several of the middle or average values. In computing the median, however, all values count equally. In such distributions, therefore, the median probably gives a better measure of type.

#### MEASURING THE SCATTERING OF DATA: VARIABILITY

An average does not completely describe a distribution of data. It merely tells about where the middle values are. In the case of distributions of measures of human traits it tells where the measures tend to concentrate; what values occur most frequently. It locates the hump on the curve. It does not tell how wide the hump is—how much the measures are scattered about or away from the average. And it is important to know this. It is the scattering of the mass

we are interested to measure statistically. And there is a very plain way to measure it; namely, to take some convenient fraction of all our measures and state within what values on the scale these are included. The easiest number to use is the middle half of the measures, or one of the middle quarters.

Suppose I measured the heights of 8,585 men and found the average height to be 67.46 inches. You would then know one fact about the measurements. This would not tell you anything about the spreading out of the measures. Next suppose I said: "two were as tall as 77 inches, and 3 as short as 57 inches." Now you know two facts, the *average* and the *range*. You know the mean and the extremes. Still you would not know much about the concentration of the measures.

Next, suppose I added that the middle half of the heights (the middle 4292) fell between 65.9 and 69.0. You would know now, that one of the middle quarters (2146) fell between 67.4 and 69 inches, and that the other fell between 65.5 and 67.4. Also that 2146 fell in the eight inches from 69 to 77, and that 2146 more fell in the eight inches from 57 to 65.9. And you would know without seeing the whole distribution, that the measures were decidedly concentrated about the average 67.4 inches.

However, the very clearest way to portray *variability* is to give the graph of the distribution together with some statistical measures. In Diagram VI the whole situation is presented; the average, the range, and the concentration, as shown by the two middle quarters.

Now it is awkward to use the entire phrase "the middle fifty percent falls between." So we use two different symbols to stand for it. The easier one to remember is *Q* (for quartile). *Q* is half the difference between the values that take in the middle 50 percent of the cases. In Diagram I-4 the middle fifty percent fall between 65 and 69 inches. That is  $2Q$  is 69-65, or 4 inches. Hence, *Q* is 2 inches.

There is another symbol for this measure of the middle values: *P.E.*, which stands for *Probable Error*. *Q* or *P.E.* may mean the same thing—"the distance on the scale both above and below the

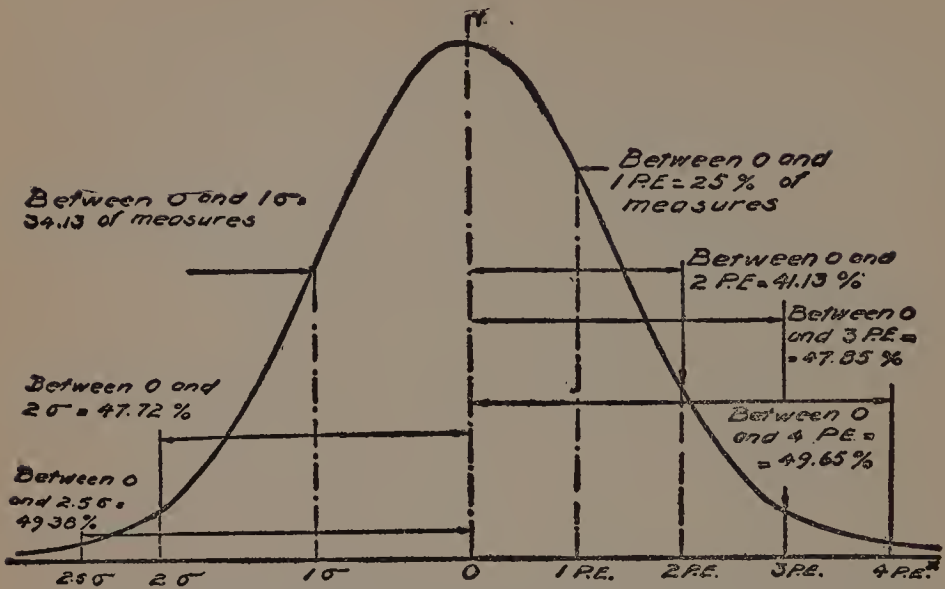


DIAGRAM VI.—TO ILLUSTRATE THE USE OF “STANDARD DEVIATION,”  $\sigma$ , AND “PROBABLE ERROR,”  $P.E.$ , AS “UNIT DISTANCES ON THE SCALE” (i.e., AS MEASURES OF VARIABILITY) OF A “NORMAL FREQUENCY CURVE”

average that includes 25 percent of the cases.” This is strictly true only when the distribution is absolutely normal, or symmetrical.

*How to compute Q.* Think of any distribution as divided into a number of parts, first, say, halves. The median ( $M_d$ ) is the point on the scale which so divides it. Remember, it is the number of measures you are dividing, not the scale itself.

Next, think of the measures in the distribution as divided into quarters. For example, take the distribution of Diagram VI. That distribution is divided into quarters, not by dividing the units on the base-line into quarters, but by counting in from the largest or from the smallest value until one fourth of the measures, two-fourths, and three-fourths are included. The values on the scale are the quarter points. We call them  $Q_3$  and  $Q_2$  and  $Q_1$ . Half the difference (or distance) between  $Q_3$  and  $Q_1$  is  $Q$ .

When the measures are grouped in a frequency distribution, determine the quartile points exactly the same way as for the median.

### Another Way to Describe Variability: Averaging Deviations from the Mean

There is another convenient way to tell how the measures of a distribution spread out. That is, to picture the amount that the measures as a whole differ from their average.

Look at Table VI. Each measure can be thought of as differing or "deviating" from the average (either mean or median) of the whole distribution. The average is a convenient central point to take because it fluctuates so little. In Table VI the approximate median is 10. Each of the ten measures of value 11 has a "deviation of 1." Each of the four measures of value 14 has a deviation of 4. Similarly the measures of each of the 8 cases of value 9 have a deviation of  $-1$ ; each of the 5 of value 8 a deviation of  $-2$ ; and those of value 7 a deviation of  $-3$ , etc.

Now the best way to picture these deviations as a whole is to average them disregarding signs. Table VI shows how this is done. (The approximate median 10.0 is used instead of the true median, 10.88, in this illustration.)

TABLE VI

Values	Frequency f	Deviations d	Frequency Deviation fd
17	1	7	7
16	0	6	0
15	3	5	15
14	4	4	16
13	5	3	15
12	7	2	14
11	10	1	10
10 (approx. md.)	12	0	—
9	8	1	8
8	5	2	10
7	3	3	9
6	1	4	4
5	2	5	10
4	1	6	6
3	1	7	7
	63		131
131 ÷ 63 = 2.07, the Average Deviation, A.D.			



### Another Way to Describe Variability: The Standard Deviation

Perhaps you will find it more helpful to think of distributions as divided into thirds, instead of halves or quarters. If so, the *standard deviation* will be clear to you as a measure of variability. In round numbers it is the difference in value from the average that includes one-third of the entire number of cases. Diagram VI illustrates this measure.

This deviation, the standard deviation, is used a great deal in accurate statistical work and its symbol is S.D., or oftener  $\sigma$  (sigma). Between the mean and  $-1\sigma$  on the left side about one-third of all the measures are included. Accurately, on a particular distribution known as "normal," 68.26 percent of the measures are taken in between  $1\sigma$  and  $-1\sigma$ .

For practical interpretive purposes, Q, P.E. and A.D. may each be thought of as taking in about one-fourth of the measures on each side of the average, and  $\sigma$  as taking in one third.

#### How to Compute the Standard Deviation<sup>1</sup>

The standard deviation is computed much like the average deviation. The chief difference is that each "deviation" is squared and the square root of the average is taken.

Table VII illustrates the method. In it 477 is divided by 63 and the square root of the quotient gives 2.75, the standard deviation.

#### How to Compare the Variability of Distributions of Data

One method of telling when one distribution is larger than another is to compare the averages. Differences between the distributions may consist, however, not in average value, but in the scattering of the measures, in the variability. The question will arise: Can we tell which of two distributions is the more variable by comparing two Q's or two A.D.'s or two S.D.'s? Only under two conditions: first, the units of measurement must be the same; second,

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<sup>1</sup> A short method of computing the standard deviation for grouped data will be found in the writer's *Statistical Methods Applied to Education*, p. 163.

the average values must be approximately the same. Under these conditions the size of the two Q's or the two A.D.'s or the two S.D.'s will tell you the relative variability of the two distributions.

TABLE VII.—TO ILLUSTRATE THE COMPUTATION OF THE STANDARD DEVIATION

	f	d	fd	fd <sup>2</sup>
17	1	7	7	49
16	0	6	0	0
15	3	5	15	75
14	4	4	16	64
13	5	3	15	45
12	7	2	14	28
11	10	1	10	10
10	12	0	0	
9	8	-1	- 8	8
8	5	-2	-10	20
7	3	-3	- 9	27
6	1	-4	- 4	16
5	2	-5	-10	50
4	1	-6	- 6	36
3	1	-7	- 7	49
N = 63				477

### HOW MANY AND WHICH CASES SHALL WE TEST? IN EDUCATION WE DEAL WITH SAMPLES

A measure of the abilities of the pupils in *one* class would usually give a very irregular shape. Teaching groups are small, generally less than fifty. Single classes may be regarded as "samples." Now, of course, no important generalizations can be made from such samples as these. We would need much larger numbers.

Suppose, for example, we wished to know the "standard" reading ability of third-grade children against which any teacher might check the work of her class. One way to set such a "standard" is to find the average reading ability of third-grade children on a particular test. Another, perhaps, to find the average of the best third, etc.

How many children shall be tested? One class of forty? Three classes in a given elementary building? The third grades of all buildings in a city? All the third-grade children in the country? This is an important statistical question.

Clearly one class is not enough. Comparison of the average reading abilities of two third-grade classes from the same building proves that. How? The averages are different. And a norm or standard, for a given kind of teaching and testing, should be constant. On the other hand, we cannot afford to test all the third-grade children of the country—several million. How many shall we test to be sure that we have the “norm”? The answer comes from the theory of “sampling.” As we increase the number of cases, the regularity of the distribution increases. When we have several thousand cases, the polygon made up of straight lines becomes so continuous that it may fairly be called a continuous curve.

Now, when two or more distributions from the same data are very continuous, their averages are always very closely the same. And this known fact gives us the criterion for the size of a representative sample: A representative or *random sample* is such a number of cases that if another sample like it be taken, the averages, the measures of variability, and the distributions themselves are closely the same. We cannot generalize as to the number of cases needed with a given kind of data. That will depend upon the condition of the particular problem. We have already learned, however, that for most facts from education, 500 cases are necessary to give a very continuous distribution. When setting a “norm” for a given trait, however, it would doubtless be necessary to make thousands of measurements. For example, see Diagram I, 4, giving the heights of 8585 men. The average is 67.46 inches. Doubtless the average heights of another 8000 or 9000 men, provided they were selected at random, that is by chance, would not be much different from 67.46. For example, there are statistical methods by which we can predict with practical certainty that the average height of another group of 8585 men, selected in the same way, would be within .08 inches of 67.46 (*i.e.*, within  $\pm 4 \times \text{P.E.}$  which is .02 inches). A practical way to express our ideas would be to say: “The chances are even that if we took by chance, another sample of 8585 men, the average height would be within .02 inches of 67.46.” This .02 inches is called the Probable Error (P.E.) of the average.

It is of great importance to be able to make such predictions with certainty. It tells us rather definitely whether we ought to enlarge our number of cases. In the case of the average height of men, if the uses we were making of the data demanded no greater precision in the average than .08 of an inch, then 8585 is certainly a large enough number of cases. For some uses a much smaller number of cases would be satisfactory.

#### HOW TO TELL WHETHER TWO THINGS ARE RELATED: CORRELATION

Do the pupils who read most rapidly comprehend best what they read? Are those who do the formal arithmetical processes skillfully the ones who reason best? Are those who know the most facts in geography the ones who "generalize" best about problem situations in geography? Are the most "intelligent," the best spellers? These are rather important pedagogical questions. There are many others like them. We used to dispose of them rather arbitrarily and quite without evidence. We had certain preconceptions about reading ability, for example. Reading to be well done had to be slowly and carefully done. Is it true, though? If we measure pupils' *rates* of reading and also their *comprehension* of what they read, what do we find? Do the slowest readers comprehend best what they read? Not all. Some do and some do not. Diagram VII is one way of showing this. It shows the names of pupils in exact rank order in both rate and comprehension. Each line connects the two rank positions of the same pupil—his rank in the group in rate of reading with his rank in ability to comprehend.

If rate of reading were perfectly related (or "co-related," or "correlated," as we shall call it) to comprehension, then each of the connecting lines would be exactly horizontal. Each pupil would occupy exactly the same rank position in rate and in comprehension. The first in rate would be the first in comprehension; the second in rate would be the second in comprehension; and so on to the last in rate, who would also be last in comprehension. This would be called "perfect correlation." If it obtained, the two traits, "ability to read rapidly" and "ability to comprehend what is read" would be equally developed in people.

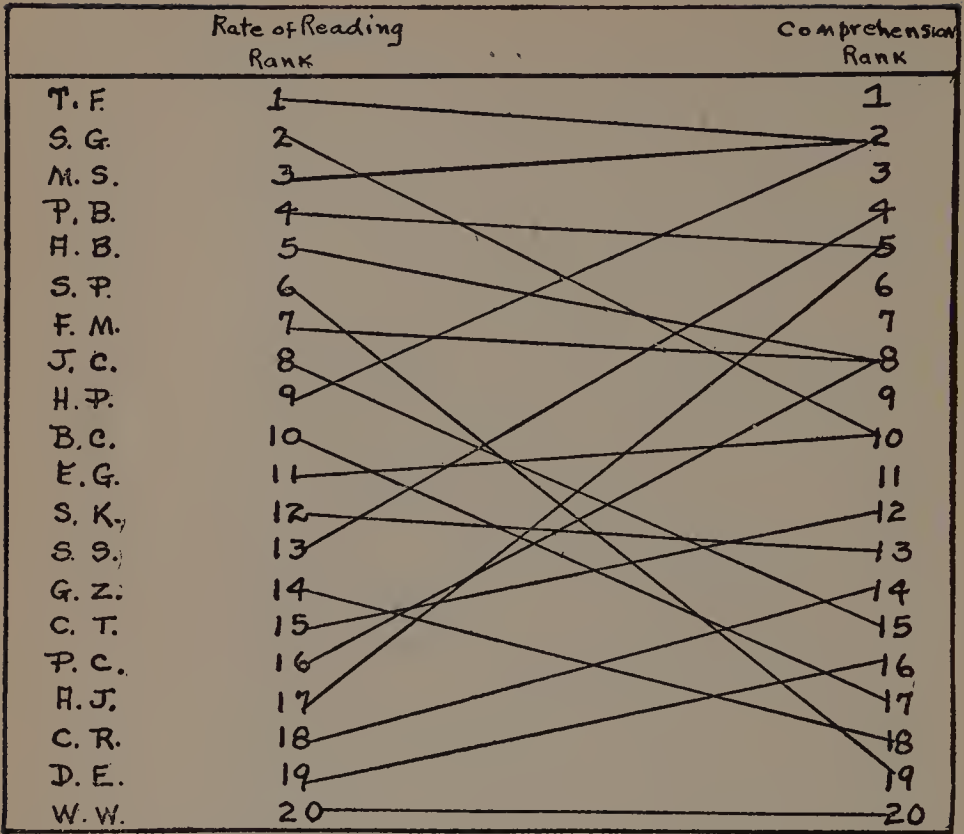


DIAGRAM VII.—COMPARISON OF RELATIVE POSITIONS OF PUPILS IN RATE OF READING AND IN COMPREHENSION

But Diagram VII shows that the two traits are not perfectly correlated. In fact *no two human abilities are perfectly correlated*. The lines tend to be somewhat horizontal. The pupils fall into about the same general division on each scale, but do not occupy exactly the same ranks.

We can tell from Diagram VII only in a general way how closely the two traits are correlated. There are other ways to tell more exactly.

One way is shown by Table VIII. The pupils are grouped in five groups with respect to their ability to comprehend. The average reading rates are then given for each group. The best four pupils read, on the average, nearly three times as fast as the poor-



est four, 252 against 92. And there is a steady increase from the poorest to the best readers, 92, 132, 169, 208, and 252. Such evidence tells us that there is a distinct tendency for those who read rapidly to comprehend best what they read. *Vice versa*, the slowest readers comprehend the least. And the relation appears to hold well throughout the group.

TABLE VIII—ILLUSTRATING HOW ABILITY TO COMPREHEND IS RELATED TO RATE OF READING\*

How the pupils were grouped	Scores in comprehension made by the pupils	Rate (words per minute) at which different groups read
The four best in comprehension in the class	98	252
The next four best	86.5	208
The middle four	91.5	169
Four who were inferior in comprehension	91	132
The four poorest in comprehension	82	92

\* These pupils were carefully tested by the Courtis and by the Burgess Reading Tests. Their ability to comprehend was marked rather accurately and their rates very accurately.

But this method of telling to what extent things are related is not very exact. It leads only to statements about "tendencies," to "in general it is true," to "there appears to be a correlation," etc. We need more exact methods, so we use single numbers.

### The Coefficient of Correlation, " $r$ "

In a perfect correlation each pupil occupies the same position on each scale. We say that the correlation is 100, or better yet 1.0. It is the "highest" we could get. It is inconceivable that two things could be more "highly" or "perfectly" correlated. We call this number the *coefficient of correlation*. The symbol for it is " $r$ ." You would read  $r$ .49, as "the coefficient of correlation is .49."

Now suppose the most rapid reader was the poorest reader, the second most rapid reader was the next to poorest in comprehension, the third poorest in rate was the third poorest in comprehension, and so on throughout the entire group. Then we would have "negative" or "inverse" correlation, where the high in one trait are the low in the other. Actually, we know that human traits are not so inversely, or negatively related.

Now this is the most extreme case of "negative" correlation we could have. The first are last and the last are first. We use the number  $-1.0$  to express this extreme *negative* correlation just as  $+1.0$  is used for perfect *positive* correlation. Thus we can think of the correlation (relationship) between the two things as expressed by a single number. And we know now that that number will always be between  $+1.0$  and  $-1.0$ . Think of the amount of correlation, the coefficients of correlation as laid out along a scale, like Diagram VIII.

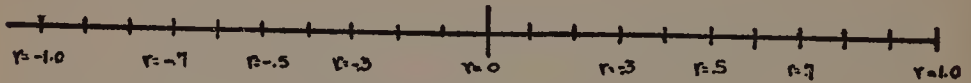


DIAGRAM VIII.—TO ILLUSTRATE HOW "r" MAY VARY FROM  $-1$  TO  $+1$

Now, clearly,  $r$  can vary all the way from  $+1.0$  to  $0$  and from  $0$  to  $-1.0$ . It can be  $+.7$ , or  $+.02$ , or  $+.12$  or  $0$ , or  $-.07$ , or  $-.29$ , or  $-.82$ , etc. Is " $r=.70$ " an example of "high" correlation or does  $r$  have to be  $.80$  or  $.90$  to be "high"? Some educationists have been very careless in their interpretations of values of  $r$ . Some have called  $r=.25$ , "distinctly marked correlation" and  $.40$  "high correlation." Others interpret "high" to be anything above  $.60$  and any value of  $r$  below  $.20$  as "very low."

By "*high*" correlation is commonly meant a value of  $r$  which is about  $.5$  to  $.7$ . By "*very high*" correlation an  $r$  which is in the neighborhood of  $.8$  and  $.9$ . By "*marked*" correlation an  $r$  ranging from  $.35$  to say  $.50$ . By "*low*" correlation an  $r$  about  $.20$  to  $.35$ . When  $r$  gets as low as  $.10$ , it is safe to conclude that there is no significant degree of relationship.

## HOW TO COMPUTE THE COEFFICIENT OF CORRELATION, "r"

## 1. The 'Rank' Methods

The easiest way to compute  $r$  is to rank each set of measures and use a simple formula:

$$\rho = 1 - \frac{6 \sum D^2}{N(N^2 - 1)}$$

In this formula  $D$  is the total of the differences between the ranks of the measures in the two series.  $N$  is the total number of measures. The steps in the computation of  $\rho$  is as follows (see Table IX):

1. Rank the measures in order of size, beginning with the smallest or largest.
2. Subtract the rank of each measure in the first series from its corresponding rank in the second series. Call this  $D$ , the difference in rank. Tabulate these as positive, negative, or 0.
3. Square each of these differences, giving the column headed  $D^2$ .
4. Sum the  $D^2$ 's giving  $\sum D^2$  or  $\sum g$ .
5. Multiply  $\sum D^2$  or  $\sum g$  by 6.
6. Divide  $6 \sum D^2$  by  $N(N^2 - 1)$ .
7. Subtract the quotient in either case from 1. This is  $\rho$  for the first method,  $R$  for the second.
8. Transmute  $\rho$  into  $r$  by reading proper value from tables. Transmute  $R$  into  $r$  by reading proper values from tables. This method is called "Spearman's Method of Rank." There is a still simpler method: "Spearman's Footrule for Correlation." The formula is:

$$R = 1 - \frac{6 \sum g}{N^2 - 1},$$

in which  $g$  is any positive difference. So the chief distinction between the two methods is that in the first the differences are squared—in the second, not. Either method can be used—probably the squared difference method will be more satisfactory. The writer recommends that rank methods be used only for small numbers of cases, say less than 30 to 40, and especially when the interest is in finding out the correlation for relative position only.

TABLE IX.—TO ILLUSTRATE COMPUTATION OF CORRELATION BY SPEARMAN'S RANK-DIFFERENCE METHOD

	Rank Rate of Reading	Rank Comprehension	D	D <sup>2</sup>
T.F.	1	2	1	1
S.G.	2	10.5	8.5	72.25
M.S.	3	2	-1	1
P.B.	4	5.5	1.5	2.25
A.B.	5	8	3	9
S.P.	6	19	13	169
F.M.	7	8	1	1
J.C.	8	15	7	49
H.P.	9	2	-7	49
B.C.	10	17	7	49
E.G.	11	10.5	-.5	.25
S.K.	12	13	1	1
S.S.	13	4	-9	81
G.Z.	14	18	4	16
C.T.	15	12	-3	9
P.C.	16	8	-8	64
A.J.	17	5.5	-11.5	132.25
C.R.	18	14	-4	16
D.E.	19	16	-3	9
W.W.	20	20	0	
N = 20				Σ D <sup>2</sup> = 731
$\rho = 1 - \frac{6 \Sigma D^2}{N(N^2 - 1)} = 1 - \frac{4386}{7980} = .45$ $r = .47$				

## 2. The Product-Moment Method

It is more common to compute correlation by what is known as Pearson's *product-moment* formula. The simplest form to use is:

$$r = \frac{\Sigma x \cdot y}{\sqrt{\Sigma x^2 \cdot \Sigma y^2}},$$

in which *x* is the difference between the average of one distribution and any measure in the distribution and *y* is a like difference for the other distribution.

Table X shows how this is done for the same distributions as before; *i.e.*, for the correlation between rate and comprehension in reading.

TABLE X.—To ILLUSTRATE COMPUTATION OF THE COEFFICIENT OF CORRELATION BY THE PEARSON PRODUCT-MOMENT METHOD

Pupil	Score in I	Score in II	x diff. of Scores in I from Average	y diff. of Scores in II from Average	$x^2$	$y^2$	$xy$
T.F.	290	100	120	10	14400	100	1200
S.G.	261	94	91	4	8281	16	364
M.S.	230	100	60	10	3600	100	600
P.B.	226	97	56	7	3136	49	392
A.B.	221	96	51	6	2601	36	306
S.P.	211	66	41	-24	1681	576	-984
F.M.	204	96	34	6	1156	36	204
J.C.	196	88	26	-18	676	324	-468
H.P.	194	100	24	10	576	100	240
B.C.	173	81	3	-9	9	81	-27
E.G.	156	94	-14	4	196	16	-56
S.K.	153	91	-17	1	289	1	-17
S.S.	147	98	-23	8	529	64	-184
G.Z.	142	76	-28	-14	784	196	-392
C.T.	122	93	-48	3	2304	9	-144
P.C.	116	96	-54	6	2916	36	-324
A.J.	110	97	-60	7	3600	49	-420
C.R.	103	90	-67	0	4489	0	0
D.E.	94	83	-76	-7	5776	49	532
W.W.	62	58	-108	-32	11664	1024	3456
Average=170		90			68663	2862	5082

$$r = \frac{\sum x.y}{\sqrt{\sum x^2 \cdot \sum y^2}} = \frac{5082}{\sqrt{68663 \times 2862}}$$

$$= \frac{5082}{14019} = .36$$

$$\text{P.E.} = .6745 \frac{1 - r^2}{\sqrt{N}} = \pm .13$$

*How reliable is the correlation coefficient?* If we correlated rate and comprehension in many other classes, would we continue to get  $r = .36$  as we did in this one? Or would  $r$  vary widely, say from .2 to .8? How can we tell? We might take many classes and compute the  $r$ 's. This is impracticable. It is possible to get much light from what is known as the probable error of the coefficient, P.E. This is computed from the formula:

$$\text{P.E. } r = .6745 \frac{1 - r^2}{\sqrt{N}},$$



in which  $r$  is the coefficient of correlation and  $N$  is the number of cases. In the improvement of methods the computation of coefficients of correlation and of probable errors plays an important part.<sup>2</sup> Diagram VI shows that the probable error is a number that, added to the average and subtracted from it, takes in the middle half of the measures. From Diagram I-4 we found that the average height of 8585 men was 67.4 inches and the P.E. of the distribution 2.0 inches; half the men fell between 65.4 and 69.4 inches. Since 50 percent more fell outside, we say "the chances are even" (1 to 1) that the height of any person selected at random will be between 65.4 and 69.4.

Now study diagram I-4 again. Between  $\pm 2$  P. E., 82.26 percent of the cases are included, and 17.74 percent fall outside. So we say: the chances are about 4.5 to 1 that the height of any person selected at random will be between 63.4 and 71.4 inches (*i.e.*,  $67.4 \pm 4$  inches).

In the same way, if the P.E. of a correlation coefficient of .50 is, say, .07, it means that the chances that the true value lies within

$\pm 1$  P.E. are 1:1

$\pm 2$  P.E. are 4.5:1

$\pm 3$  P.E. are 21:1

$\pm 4$  P.E. are 142:1, etc.

To be regarded as sound, we demand that a coefficient of correlation,  $r$ , be at least four times as large as its P.E.

We are now determining the probable errors of the scores made by persons on tests. For example, the P.E. of an I.Q. (Stanford-Binet) is about 3.5 points. Otis, who has worked upon the matter says: "An I.Q. is probably in error to the extent of about 6 points or more in a quarter of the cases, 10 points or more in one case in ten, and 14 points or more in one case in a hundred." The P.E. of the mental age of an adult determined by the Stanford-Binet test is about 6 months. "That is, in 50 percent of cases, mental ages of adults may be assumed to be correct within 6 months."

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<sup>2</sup> See *Statistical Methods Applied to Education*, pp. 233-275.

## 3. Computing Correlation from "Scatter-Diagrams"

To get the clearest understanding of the correlation between two things, one should plot a "scatter-diagram" of the pairs of measurements, like Diagram IX. The computation can be done by an

		I.Q. at Second Test.																			
		80	85	90	95	100	105	110	115	120	125	130	135	140	145	150	155	160	165	170	
I.Q. at First Test	165																		1	1	1
	160																				
	155															1	1	1			3
	150															1	1				2
	145																	1			1
	140														4	3	1				8
	135												1	4							6
	130										1	1	3	1	1						7
	125							1	1	1	7	1	1	1							13
	120							3	2	3	3	1	1								13
	115							3	6	5		2									26
	110							2	7	5	2	3									19
	105							2	3	3	2	2									12
	100							4	8	3											15
	95							2	2	1	1										6
	90							2	1												3
	85							1													1
	80																				
		2	4	8	14	21	26	15	14	8	11	6	3	3	0	0	1				136

DIAGRAM IX.—TO ILLUSTRATE TABULATION OF PAIRS OF MEASURES FOR COMPUTATION OF CORRELATION BY THE "ASSUMED-MEAN" METHOD (PRODUCT-MOMENT)

abbreviated method.<sup>3</sup> If all the cases occurred in the squares along a diagonal we would have perfect correlation,  $r = +1.0$ , or  $-1.0$ . If the cases were widely scattered over the squares, then  $r$  would become small and the correlation would be nearly zero, that is, a "chance" correspondence.

<sup>3</sup> Described in *Statistical Methods Applied to Education*.

SECTION II.—THE DEVELOPMENT OF STATISTICAL METHODS  
IN EDUCATIONAL RESEARCH, 1916-1921<sup>4</sup>

The preceding pages have been written in the attempt to acquaint school teachers and administrators with common and elementary methods of treating test data. It is the purpose of the remainder of this chapter to bring together for research workers the newer methods employed in the treatment of research material.

## TESTING CORRELATION DATA FOR LINEARITY OF REGRESSION

We comment first on the fact that practically no use has been, or is being made of non-linear relationship. The general formula for correlation is strictly applicable to linear relationships only. A non-linear relationship must be reduced to a linear relationship before the formula is applied. Thousands of computations are being made of the correlations between different mental functions. The relationships are so universally linear that practically no reports are made of precaution having been taken to determine the linearity of regression, and it is true that in the case of the correlation between mental traits the case of linearity is becoming more firmly established. It should be pointed out, however, that, as workers in educational research deal more extensively with the correlation of administrative facts, the precaution should be taken to test the linearity of the regression. For example, one of the writers has collected correlations for such things as size of class, and cost of instruction, costs of the several subjects, etc. In these examples no case has been found of straight-line regression. To use the product-moment formula of such variables is to hide the truth. For example, non-linear tables that show an  $\eta$  of .90 frequently give values of  $r$  as low as .40 when the product-moment formula is applied.

TWO TYPES OF STATISTICAL PROCEDURE NOW EMPLOYED  
IN EDUCATION

The widespread use of mental and educational tests paralleling the establishment of school bureaus of research has stimulated the use of two types of statistical procedure.

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<sup>4</sup> Cecile Colloton collaborated with the writer in the preparation of this section.

First, bureau directors and school administrators are rapidly becoming familiar with, and are using, the graphic and statistical methods of averages, variability, and correlation. It is not uncommon for the standard methods of determining relationship (referred to in the foregoing sections) to be used by these workers. The elementary uses of probability, and the determining of correlation by more complicated methods are, however, not being taken up by these workers. This probably is for the reason that most of our so-called "educational research" is not research at all. It is largely school administration: the giving of tests, the determining of scores, computations of averages and their comparison with "norms," the occasional study of individual pupils and the making of remedial recommendations. This is the work of the practitioner in diagnosing and prescribing treatment. Naturally, only the most elementary statistical methods are employed, namely, the use of averages, measures of variability. Correlation is only rarely used.

Second, in addition to these administrators, a small nucleus of workers, made up of professional students of education and graduate students in our schools of education, are using more elaborate methods. It is interesting to see the parallelism in the development of the science of education with that of the older established sciences. In education today there is a marked practical demand for a statistical technique by which our educational and mental measuring instruments can be improved. In response to it new methods of determining their reliability are being developed. This is engrossing the attention of many of our students of statistical methods.

We publish at the end of this chapter an annotated bibliography of writings dealing with the recent use of more elaborate statistical methods. It is important to note that the refinement of methods is a product of the past five years. A few of our workers, notably Kelley, Otis, Ruml, Rosenow, Thurstone, were engaged in their first studies in the years 1912-1916. Our entrance into the war postponed the publication of some of this material, *e.g.*, Otis' critical work on the reliability of tests. One more historical comment is worth making in passing: the leadership in development of statistical methods appears to be passing out of the hands of the

student of laboratory and pure psychology (where it was for a generation) into the hands of a younger generation of research workers in the fields of education, industrial psychology and personnel administration.

There have been two distinctive leads in this refinement of statistical methods by educationists: first (perhaps the more engrossing at the present time) is the development of methods to determine the reliability of mental and educational tests; second, an interest pervading education, in common with other social sciences, is the development of statistical methods to predict future conditions, as for example, success in school or in an occupation.

#### DETERMINATION OF THE RELIABILITY OF TESTS

Current methods of determining the reliability of tests are fourfold: (1) determination of the agreement of the distribution of the test scores with the known or probable distribution of the trait; (2) determination of the number of times a test would have to be repeated in order to discover "with any desired degree of reliability the relative standing of the pupils" taking the test, *i.e.*, self-correlation; (3) correlation of the test scores with a sound criterion, *i.e.*, with other and independent measures of the trait; (4) determination of the probable errors (or standard deviations) of single test scores.

##### 1. Agreement of the Distribution of the Test Scores with the Known or Probable Distribution of the Trait

This is a necessary step in the construction of a scale and has been employed from the beginning of the movement. Examples appear in the Buckingham Spelling Scale, the Ayres Spelling Scale, the Burgess Reading Scale, etc. Such examples also illustrate the attempt that is being made to improve tests by assuming that that test is the more reliable in which the elements of the test are distributed at equal intervals on the base-line of a distribution curve. The normal probability curve is being employed universally as the best approximation to the shape of the distribution of these total abilities—"reading ability," "handwriting ability," etc. It should



be noted that this whole method of comparison with a law of distribution is an inadequate measure of the *reliability* of the test.

## 2. Number of Repetitions of the Test Necessary to Secure a Given Reliability; Self-Correlation

A very large amount of work is being done along this line. Most of it consists in determining "coefficients of reliability" by means of Brown's formula.<sup>5</sup> This is the coefficient of reliability =  $\frac{n r}{1 + (n - 1) r}$ , in which  $n$  equals the number of repetitions and  $r$  is the coefficient of correlation from two applications of a test. Suppose for illustration,  $n = 2$ , then coefficient =  $\frac{2 r}{1 + r}$ . This

coefficient of reliability enables one to predict how closely the combined results of any two trials of a single test would correlate with like combined results from two other trials with the same test.<sup>6</sup> Conversely, setting any desired degree of reliability, the formula enables one to predict the number of repetitions necessary.

*First Limitation of the Method.* Dr. Burgess has pointed out one of the limitations of the use of the formula so well that I shall quote her discussion.

"The coefficients measure the degree to which children who made good scores in the first test also made good ones in the second test, and conversely, the degree to which those who did poorly the first time also did poorly the second time. When the correlations are fairly high, they show that there was substantial agreement in the results of the two testings, but that this fell short of being complete. These results give us more information with regard to the children than they do with regard to the test. They show us that some children who did well on the first day performed quite differently on the following day; and the same type of statement may be made about those who made poor records on the first trial. . . .

"The important fact to remember about such scores is that they may vary from day to day and still be actual true measures of ability on each occasion. Under such conditions the fact that the scores vary from trial to trial does not reflect any inaccuracy and inadequacy of the test or measuring device. . . .

<sup>5</sup> Brown, Wm. *The Essentials of Mental Measurement*. Cambridge University Press, London, England, 1911, pp. 101-2.

<sup>6</sup> The best elementary discussion of this is in Burgess, *The Measurement of Silent Reading*. Russell Sage Foundation, pp. 129-133.

“What Brown’s formula really does is to compare the coefficient of correlation between one pair of results from two applications of a test with the coefficient of correlation that would be obtained between one average of scores from two or more testings and another similar average of scores from two or more testings. . . .

“The method is of limited value because it is impossible to tell whether the correlation between the first two testings is low, average, or high. In the case of the data given by Professor Thorndike, and referred to in the preceding section, the correlations between the various testings of the same individuals with the same test ranged from .36 to .90. If the coefficient of reliability were based on the lowest correlation it would indicate that the results of no fewer than 16 different testings would have to be amalgamated in order to give a reliability coefficient of .90. If it were based on the highest correlation it would indicate that no amalgamation at all would be necessary to produce the same result.”

*Second Limitation of the Method.* One of the most frequently used methods of determining the reliability of a test is to find its self-correlation, *i.e.*, the correlation of one form of the test with a second form. The second form is to be composed of material like that in the first form, but not identical with it. We have referred to one danger in using coefficients of reliability obtained through self-correlation. There is another, namely that *the size of the coefficient depends upon the spread of the group tested*. The spread of ability in a single school grade is probably not more than one third what it is in 12 grades. This difference in dispersion will change markedly the size of the coefficient. For example, Otis gave the Stanford-Binet test to 180 adult males. He divided the test questions into two halves (or forms) so that the first form contained the first half of the questions for each age-level, and the second form contained the second half. The correlation *for the entire group* was .85. Taking only those individuals whose mental ages fell between 13 and 16:11, the correlation proved to be only .44. Taking only those individuals whose mental ages fell between 13 and 14:11,  $r$  was  $-.14$ . Taking now only those between ages 13 and 13:11, the correlation was  $-.62$ .

Kelley has commented on the same pitfall and has developed a formula by which one can determine, knowing the ratio of the variability in the two groups, what the size of the correlations would have to be, to be comparable. His formula is:

$$\frac{\sigma_t}{\sigma_T} = \frac{\sqrt{r(1-R)}}{\sqrt{R(1-r)}},$$

in which  $\sigma_t$  and  $\sigma_T$  are the standard deviations of the two groups in terms of true ability and  $r$  and  $R$  are the reliability coefficients of the two groups. He takes an illustrative case. "To secure a reliability coefficient of 0.40 from a group composed of children in a single grade is probably indicative of greater, not less, reliability than to secure a reliability coefficient of 0.90 from a group composed of children from the second to the twelfth grades." He assumes  $\sigma_T = 4 \sigma_t$  and  $r = 0.40$ . Solving the above equation gives  $R = 0.914$ .

If the standard deviations of the scores in the two groups are known, one does not need to make an assumption about dispersion and can use this formula:

$$\frac{\sigma}{\Sigma} = \frac{\sqrt{1-R}}{\sqrt{1-r}},$$

in which  $\sigma$  and  $\Sigma$  are the standard deviations of the two groups.

This equation can be employed to tell whether an increase in a correlation is due to its being found from a particular part of the range. This equation can, therefore, be used as a criterion to tell whether a test is equally effective in a range  $\Sigma$  as in another range  $\sigma$ .

### 3. Correlation of Test Scores with a Criterion

Correlation of test scores with a criterion is primarily a measure of validity, not of reliability. Kelley has commented on the fact that "if a measure correlates very highly with known measures of capacity, it must of necessity have a fair degree of reliability, but, as the converse is not true—that if a test has high reliability, it will correlate well with a valid criterion—correlation with a good criterion should be used as a measure of validity and not of reliability." Now it is very important to know the *validity* of a test, that is, whether it measures what it purports to measure. But we should not confuse *what* traits our tests measure with *how well* they measure them. Nevertheless, Kelley shows that in order to determine both what a test measures and how well it measures it,

we must know (1) the correlation of test with criterion, (2) the reliability of the test, (3) the reliability of the criterion. The difficulties which we now face in improving our tests are shown by the fact that the reliability of the criterion is rarely known and that we have not carried far as yet the determination of the reliability of our tests. For illustrations the reader should see Kelley's article "The Reliability of Test Scores" (see Section III, Bibliography, Ref. 1).

#### 4. Determination of the Probable Errors of Test Scores

This lead appears to give the greatest promise of helpful results, and considerable application is made of it. It is now postulated that that test is the more reliable which gives the smaller probable errors in individual scores. Care is taken to see that probable errors are expressed (using Kelley's terminology) either (1) in terms of a measure of deviation of the group tested, or (2) in terms of the deviation of some standardized group, say "unselected English-speaking 12-year-olds," or (3) in terms of the difference between two standardized groups, say "unselected children of two different ages."

One of the best examples of this method of determining reliability is the work that is being done on the Stanford-Binet test. A number of individuals have worked upon it. It is now possible to say that the P.E. of an I.Q. is approximately constant and is about 3.5 points (Ref. 2).

The chief use of probable errors is in connection with the need to estimate true (average) test scores from known (single) test scores. (Remember that the "true" score is the average of the many scores that individuals would make if tested under like conditions on a large number of forms of the test.) The most easily interpreted formula to use is that for the probable error of estimate:

$$\text{P.E. est.} = .6745 \sigma \sqrt{1 - r^2}$$

There is a very real disadvantage to using the smallness of probable errors of estimate, namely, that if the units of two tests (say for reading, or spelling, etc.) are different, the P.E.'s cannot be compared unless the units are equated in some fashion. For



that reason Kelley has proposed that we define our standard groups so that another investigator can duplicate them, *e.g.*, take “unselected English-speaking 12-year-olds.” He has also proposed that the difference between the mean scores of unselected 12-year-olds and 13-year-olds be taken as the unit and that the probable error of estimate of tests be expressed in terms of this unit. There are so many other complicating factors (*e.g.*, inequality in rate of growth) that it should be held in mind that these are merely suggestions to stimulate thought and discussion.

## DEVELOPMENT OF METHODS OF SCIENTIFIC ANALYSIS AND PREDICTION

### 1. Multiple Correlation and Partial Regression Equations

The primary purpose of science is the discovery of law and the bases of prediction. We devote ourselves to their study only that we may control both our conduct and our environment. There is no clearer evidence that education is becoming a science than the spectacular manner of its adoption of the methods of statistical correlation, especially the theory and practice of multiple correlation. The annotated bibliography at the end of this chapter provides a striking exhibit of the rapidity with which our great social sciences are assuming their scientific obligations.

Probably no better illustration can be found of the possibility of using multiple correlation to control our social and economic environment than Moore's recent use of it (1917) to forecast the yield and price of cotton. He has shown that if the rainfall and temperature, four, three, and two months, respectively, in advance of the harvest are known, one can predict the yield of the cotton crop with (1) a multiple regression equation (either of three or four variables) of the type:

$$x_0 = b_1 x_1 + b_2 x_2$$

where  $x_0$  is the unknown yield,  $x_1$  is the known data of rainfall, and  $x_2$  the known data of sunshine; (2) by calculating the degree of relationship between these variables by the coefficient of multiple correlation:

$$R = \frac{\sqrt{r_{12}^2 + r_{13}^2 - 2r_{12}r_{13}r_{23}}}{\sqrt{1 - r_{23}^2}};$$



(3) by determining the accuracy of the multiple regression equation as a forecasting formula by calculating the standard error of estimate:

$$S = \sigma_0 \sqrt{1 - R^2}$$

He shows that prediction by the use of multiple correlation is more accurate than the official forecasts of the Federal Department of Agriculture with its wonderful statistical organization. "By a connection with many thousands of correspondents, by field-agents, by special experts in crop estimates, by a Bureau of Statistics and a Crop-Reporting Board, information has been systematically gathered and tabulated, and for several decades monthly reports have been issued throughout the growth season of the crop. Extraordinary precautions have been taken to prevent any leakage of the precious information before it is given to the public." Thus, in a field where natural causes dominate, fundamental causal connections can be, and are being discovered by multiple correlation. Likewise in the field of social causes.

Although it is the infant of the sciences, education has made a most important beginning in prediction by multiple correlation. One outstanding use is being made of the method at the present time: to determine the component abilities entering into a "general ability," and to determine the diagnostic value of different tests. Kelley, Rosenow, Wendle and Wyman, Higbie, Toops, and Gray are among the chief users of the method. But it is to Kelley that we owe the real impetus for the movement (and to Thorndike for his insight in pointing the course of development), both in making the pioneer use of the method (Ref. 29) and in developing the tables by which the labor and time of computation can be so materially shortened. Rosenow has thrown helpful light on our thinking about scientific methods and he, too, has contributed important time-and-labor-saving suggestions (Ref. 5).

Just what can we do with partial correlation? What is the significance of the term "partial?" Let us take a common-place example, say Rosenow's illustration of finding the relation between yield of crops (called  $x_1$ ), rainfall ( $x_2$ ) and sunshine ( $x_3$ ). The coefficient of correlation between yield and rainfall alone would

be complicated by the unaccounted-for factor of sunshine. So we desire to "eliminate," or "hold constant," the effect of sunshine. We do this by finding the combined effect of the sunshine and rainfall on yield by adding the yield due to rain with sunshine constant to the yield due to sunshine with rain constant. As an equation, it reads:

$$x_1 = b_{12.3} x_2 + b_{13.2} x_3$$

in which  $x_1$  is the yield,  $x_2$  the rainfall, and  $x_3$  the sunshine. To understand  $b_{12.3}$  and  $b_{13.2}$ , recall that the equation for correlation between the variables  $x$  and  $y$  is

$$y = b_1 x, \text{ or } y = r \frac{\sigma_y}{\sigma_x} x$$

where  $b_1 = r \frac{\sigma_y}{\sigma_x}$ , and is called the *regression coefficient*. Now,

since a third variable is added, we need a scheme of notation. The correlation between yield and rain we will call  $r_{12}$ ; the correlation between yield and sunshine  $r_{13}$ ; the correlation between rain and sunshine  $r_{23}$ . These subscripts enable us to tell which variables are being related and which ones are held constant, *i.e.*, the effects of which ones are eliminated. A coefficient of "partial" correlation will have the notation:  $r_{12.345\dots n}$ . The subscripts to the left of the point (12) are *primary* and denote the variables which are being correlated; those to the right are *secondary* and are "eliminated" variables.  $x_1$  is called the *dependent variable*,  $x_2$  and  $x_3$  the *independent variables*.

In the complete equation (Ref. 29):

$$\begin{aligned}\sigma_{1.23} &= \sigma_1 \sqrt{1 - r_{13}^2} \sqrt{1 - r_{12.3}^2} \\ \sigma_{2.13} &= \sigma_2 \sqrt{1 - r_{23}^2} \sqrt{1 - r_{12.3}^2} \\ \sigma_{3.12} &= \sigma_3 \sqrt{1 - r_{23}^2} \sqrt{1 - r_{13.2}^2}\end{aligned}$$

This shows that to find the relative extent of the influence of each variable (shown by  $b_1$  and  $b_2$ ) it is necessary to compute all the "coefficients of zero order," *e.g.*,  $r_{12}$ ,  $r_{13}$ ,  $r_{23}$  and the coefficients of the first order  $r_{12.3}$ ,  $r_{13.2}$ , etc.

What we do in multiple correlation, therefore, is to determine the correlation that exists between actual values of  $x_1$  and values estimated from the equation of partial regression:

$$x_1 = b_{12.3} x_2 + b_{13.2} x_3$$

Just as with two variables, so with three or  $n$  variables we obtain a coefficient of multiple correlation,  $R$ , which is a measure of the closeness with which we can estimate  $x_1$  from  $x_2, x_3, x_4, \dots, x_n$ .

Limitation of space prohibits presenting the details of computation. Suffice it to say that Kelley (Ref. 29) and Rosenow (Ref. 5) have developed short methods and tables by which computation is extraordinarily facilitated. The advanced student should master the methods as set forth in these two treatments.

## 2. Limitations of Multiple Correlation Methods

The most serious limitation that the worker who uses partial regression equations should have in mind is that it assumes that the influence of the independent variables  $x_2$  and  $x_3$  on the dependent variable  $x_1$  is additive. Probably this seldom actually obtains. Thurstone's homely illustration (Ref. 12) of the relation between the volume ( $v$ ) of a box and the length ( $l$ ), width ( $w$ ), and the depth ( $d$ ) makes the point clear. The true relation is given by

$$v = k.d.w.l,$$

but the best expression we could obtain by multiple correlation would be of the form

$$v = k_1 d + k_2 d + k_3 l.$$

We have no known methods of handling a situation of this kind. Furthermore, we know nothing of the manner of combination of the constituents of gross mental functions.

The second limitation is that partial correlation is based on the assumption of linear relationship. For any non-linear relationship (and it may be that they will be found for mental functions) such an assumption leads to a coefficient and an equation which are totally fictitious measures of the true correlation. It is possible, however, to rectify a non-linear regression by mathematical devices used with empirical equations (see Thurstone, 12).

### 3. Empirical Equations as Predictive Measures

The correspondence of two series of values can be expressed in three ways: (1) as a table of correlated values; (2) as a line of most probable relationship from a scatter diagram of observed measures; (3) as the equation of such a line of relationship. Education is now using all three of these methods, the last one only recently. The regression equation already mentioned is an illustration of our progress in the statistical treatment of such data. There are three methods by which the observed data of a correlation table may be expressed as an equation: (1) The simplest method is to fit a line by inspection to the points of the table, measuring the  $y$ -intercept and the slope of the line and obtaining an equation of the form  $y = mx + b$ ; (2) the second is the method of the regression equation (see Ref. 26); (3) the third is the method of least squares which gives the values of the constants  $a$  and  $b$  in the equation  $y = a + bx$ , and from which we can predict the most probable value of  $y$  from a known value of  $x$  (see Thurstone, 12).

A new path of development has been blazed out by Thurstone's pioneer attempt to describe the course of the learning process by fitting empirical equations to the data of learning (Ref. 12). Thorndike suggested years ago the feasibility of determining the equations of basic learning curves and called attention to the fundamental form of those so far reported (Ref. 27). Thurstone, after trying about 40 different equations on published learning curves, selected a hyperbola of the form

$$Y = \frac{L(X + P)}{(X + P) + R}$$

in which  $Y$  = attainment,  $X$  = formal practice,  $P$  = equivalent previous practice,  $L$  = limit of practice, and  $R$  = rate of learning. He illustrates how such a curve can be rectified by turning the

equation into the form  $X + (R + P) = \frac{L(X + P)}{Y}$ , which is

linear, if values of  $\frac{(X + P)}{Y}$  are plotted against values of  $X$ . If a curve be so rectified, the constants  $L$ ,  $R$ , and  $P$  can be determined by any one of several methods, four of which he illustrates.

Here, then, is another illustration of the way in which the science of education is refining the statistical treatment of its data and perfecting its method of describing observed facts and of determining its basic laws.

### SECTION III.—ANNOTATED BIBLIOGRAPHY OF RECENT DEVELOPMENTS IN THE USE OF STATISTICAL METHODS IN EDUCATION<sup>7</sup>

#### A. STATISTICAL METHODS EMPLOYED IN DETERMINING RELIABILITY OF TESTS

1. Kelley, T. L. "The reliability of test scores." *Jour. of Educ. Research*, May, 1921, 370-379.

An important summary of possible methods of determining reliability with evaluation of each method. Emphasizes importance of probable errors of estimates.

2. Otis, Arthur S., and Knollin, H. E. "Reliability of Binet Scale and pedagogical scales." *Jour. of Educ. Research*, September, 1921, 121-142.

Largely a discussion of the value and technique of using probable errors of scores to measure reliability of tests. Compares this method with improper uses of coefficients of correlation, and shows influence of greater variability of some school groups on results obtained. Reports the use and derivations of (1) a difference formula for correlation, (2) a formula for the probable error of a single measure in terms of median difference between measures, (3) a formula for the probable error of half a scale.

3. Kelley T. L. "The measurement of overlapping" *Jour. of Educ. Psych.*, November, 1919, 458-461.

Points out incorrectness of all measures of overlapping reported to 1919, and need for using formula for standard deviation of an infinitely large number of similar tests when the standard deviation and the coefficient of reliability of the single tests is known.

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<sup>7</sup>The National Research Council has in preparation a volume that will bring together in a condensed form practically everything that has been done on the application of statistics in the various fields of research. This handbook, with its comprehensive bibliography, may be expected to appear some time in 1922.—*Editor*.



B. DETAILED DEVELOPMENT (WITHOUT THE CALCULUS) OF  
THE THEORY OF MULTIPLE CORRELATION

4. Yule, G. A. *An Introduction to the Theory of Statistics*, pp. 229-253.

C. APPLICATION TO EDUCATION AND EDUCATIONAL PSYCHOLOGY OF  
THE THEORY OF MULTIPLE AND PARTIAL CORRELATION

5. Rosenow, Curt. "The analysis of mental functions." *Psych. Monographs*; Vol. XXIV, No. 5, 1917.

Contains excellent exhibit of possible uses of partial correlation in the analysis of mental abilities and a non-mathematical evaluation of the theory itself. This is a pioneer application of partial correlation in this field and should be read by all students of that statistical method. Appendix contains directions for computation of coefficients by short methods which make possible very large reductions in labor and time.

6. Kelley, T. L. *Tables: To Facilitate the Calculation of Partial Coefficients of Correlation and Regression Equations*. Bulletin of the University of Texas, 1916, No. 27, Austin, Texas.

A technical statement of what partial coefficients and regression equations are, and how they can be used, with outlines and illustrations of the procedure to be followed in calculating them. By means of Kelley's tables a reduction of about 80 percent is effected in the labor of computation. The student should know both Kelley's and Rosenow's (No. 5) methods.

7. Kelley, T. L. *Educational Guidance*. Teachers College, Columbia University, Contributions to Education, No. 71, 1914.

The pioneer use of partial correlation in the analysis and prediction of ability of high-school pupils. Kelley is the first American educational psychologist to utilize methods of multiple correlation. A very technical statistical discussion.

8. Higbie, E. C. *An Objective Method for Determining Certain Fundamental Principles in Secondary Agricultural Education*. (Privately published, doctorate dissertation, Teachers College, Columbia University.)

Uses partial correlation to determine the contribution of different traits (*e.g.*, native intelligence, managerial ability, mechanical ability,

physical ability, and others) to success in farming when financial success and community value are regarded as two criteria.

9. Toops, H. A. *Trade Tests in Education*. Teachers College, Columbia University, Contributions to Education, No. 115, 1921.

Employs partial correlation to determine relative value of tests for ability in English, arithmetic, filing, use of switchboard, stenography and typewriting, general adaptability, personality, appearance, etc., in predicting trade abilities. Uses formulas for reliability of tests. Gives technical summary of statistical methods of correlation.

10. Gray, C. T. *A Score Card for the Measurement of Handwriting*. Bulletin No. 37, 1915, of the University of Texas, Austin, Texas.

Employs multiple correlation to determine weights that should be given to nine contributory elements of handwriting. An early use of partial correlation, stimulated by Kelley.

#### D. IMPORTANT ILLUSTRATIONS OF THE PRACTICAL USE OF MULTIPLE CORRELATION IN PREDICTING FUTURE CONDITIONS

11. Moore, H. L. *Forecasting the Yield and the Price of Cotton*. MacMillan, 1917, New York.

A pioneer use of correlation in economic prediction. Shows that it is possible to employ multiple correlation and regression equations with three variables to forecast the yield of cotton more accurately from the data of rainfall and temperature than is done by the elaborate official machinery now employed by the Federal Department of Agriculture. Presents a good brief resume of the mathematics of correlation. Has important values for the student of educational and psychological statistics.

#### E. THE USE OF CURVE-FITTING AS A MEANS OF PREDICTION

12. Thurstone, L. L. "The learning curve equation." *Psych. Monographs*, Vol. XXVI, No. 3, 1919.

The pioneer investigation of curve fitting in educational psychology. Primarily an illustration of how to fit empirical equations to learning data to determine exact laws of prediction. Refers to partial correlation methods in introduction.

## F. NEW FORMULAS FOR CORRELATION

13. Kelley, T. L. "A simplified method of using scaled data for purposes of testing." *School and Society*, July 1, 1916, 34-37; July 8, 71-74.

Reports formula for correlation between score in one test and the estimated average score in a succession of tests.

14. Otis, Arthur S. "The reliability of spelling scales involving a 'deviation formula' for correlation." *School and Society*, 1916, Oct. 28, pp. 677-683; Nov. 4, pp. 716-722; Nov. 11, pp. 750-760.

Reports an elaborate statistical analysis of spelling scales and a new coefficient of correlation based upon a "curve of rank relation."

15. Ruml, B. "The reliability of mental tests in the division of an academic group." *Psych. Monographs*, Vol. XXIV, No. 4, 1917.

Reports statistical methods of using mental tests for classifying pupils; use of Pearson's "Scale of Intelligence." Of interest to student of statistics because it reports a *rank-tangential coefficient* ( $t$ ) for the relation between a continuous variable and a variable divided at some point into alternative categories.

16. Ruml, B. "The measurement of the efficiency of mental tests." *Psych. Rev.*, November, 1916, 501-507.

Formula for determining practical efficiency of a test.

## G. THE USE OF BROWN'S FORMULA

17. Brown, Wm. *The Essentials of Mental Measurement*. Cambridge University Press, London, England, 1911 (pp. 101-102).

Gives derivation and use of the formula.

18. Burgess, May Ayres. *The Measurement of Silent Reading*. Russell Sage Foundation, New York City, 1921 (pp. 128-132).

Non-technical discussion of the formula and what its use really implies. Valuable.

19. Gates, Arthur I. "An experimental and statistical study of reading and reading tests." *Jour. Educ. Psych.*, September, October, and November, 1921.

An elaborate study of inter-correlations between different tests of "reading ability," and use of Brown's formula for determining reliability.

20. Wyman, J. B., and Wendle, Miriam. "What is reading ability?" *Jour. Educ. Psych.*, December, 1921, 518-531.

Elaborate use of partial correlation and reliability formulae for tests of elements entering into reading ability. Reports first use of Kelley's formula for the probable error of a coefficient of correlation corrected for attenuation, together with criticism of Spearman's "corrected coefficients."

## H. SHORT STATISTICAL METHODS

### 1. Computation of Product-Moment Coefficients of Correlation

21. Ayres, L. P. "A shorter method for computing the coefficient of correlation." *Jour. Educ. Research*, March, 1920, 216-21.

Helpful only when large numbers of coefficients are to be computed and statistical machines are to be used.

22. Ayres, L. P. "The application of tables of distribution of a shorter method of computing coefficients of correlation." *Jour. Educ. Research*, April, 1920, 295-298.

23. Ayres, L. P. "Substituting small numbers for large ones in the computation of coefficients of correlation." *Jour. Educ. Research*, June, 1920, 502-504.

24. Buckingham, B. R. "Proof of Dr. Ayres' Formula." (Editorial). *Jour. Educ. Research*, June, 1920, 505-507.

25. Ayres, L. P. "The correlation ratio." *Jour. Educ. Research*, June, 1920, 452-457.

A short method of computing the correlation ratio,  $n$ .

26. Rugg, H. O. *Statistical Methods Applied to Education*. Houghton-Mifflin Company, 1917.

27. Thorndike, E. L. *An Introduction to the Theory of Mental and Social Measurements*. Teachers College, Columbia University, 1913.

## 2. Computation of Rank-Difference Coefficients of Correlation

28. The Scott Company Laboratory, Philadelphia. "Tables to facilitate the computation of coefficients of correlation by the rank-difference method." *Jour. Applied Psych.*, June-September, 1920, 115-125.

## 3. Computation of Partial Coefficients of Correlation and Regression Equations

29. Kelley, T. L. *Tables to Facilitate the Calculation of Partial Coefficients of Correlation and Regression Equations*. Bulletin No. 27, 1916, University of Texas, Austin, Texas.





## CHAPTER IV

### AN ANNOTATED LIST OF GROUP INTELLIGENCE TESTS<sup>1</sup>

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The following list of intelligence tests presents in convenient form, condensed information concerning the compiler, the composition, the range of ages or grades covered, the time needed for administration, the publisher, the price, and sources of further information with respect to the tests that have come to my attention. The list suffers from several limitations. It makes no attempt to include tests or combinations of tests that are designed for individual application. It is probably not even a complete list of the tests available for group application. In many cases it has been impossible to give information concerning all the points specified. In particular, the references are not to be thought of as exhaustive; for the most part only those have been included that are descriptive of the tests themselves. The list would be more helpful, too, if there could have been included information concerning the time needed to score each test (an item that becomes important when large numbers of pupils are tested) and concerning the validity of each test (its predictive or diagnostic value).

These limitations, which are freely acknowledged, are due in part to the limited time at my command for the preparation of the list, in part to the rapid development of this field of applied psychology. New tests appear at short intervals; old ones undergo revision; others, which were confessedly experimental, are withdrawn from the market. I should be glad, therefore, to be informed of errors or omissions in the list.

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<sup>1</sup> Miss Frieda Kiefer, Research Assistant in Education, gathered the greater part of the information from which this chapter was compiled.

## TESTS FOR THE KINDERGARTEN AND GRADES I TO III

Title	Compiled by	Number and Nature of Tests	Range of Ages or Grades	Time to Apply	Publisher	Prices	References
An Absolute Intelligence Scale (Experimental Edition)	Grace Arthur and Herbert Woodrow	1. Immediate Memory 2. Easy opposites 3. Hard opposites 4. Substitution 5. Word building 6. Language completion 7. Anagrams 8. Cancellation 9. Comprehension	Ages 6.5 to 13.5 years				Grace Arthur and Herbert Woodrow, "An Absolute Intelligence Scale. A study in method." <i>Jour. Applied Psych.</i> , 3: June, 1919, 118-137.
Cole and Vincent Group Intelligence Test for School Entrance	Cole and Vincent		Kindergarten and first grade Ages 5 and 6		Bureau of Educ. Meas. and Stand. Kansas State Normal Sch. Emporia, Kan.	25 copies with stencils and directions, \$1.50	
The Dearborn Group Tests of Intelligence, Series I. General Examinations 1, 2 and 3	Walter F. Dearborn	Forty-two pictorial tests, many adapted for group work from Binet	Grades 1-3	Three periods of 25 min. each	J. B. Lippincott Co., Phila., Pa.	25 tests, \$1.70 100 tests, \$6.00 Instructions booklet, 25c Stencils separately	

Title	Compiled by	Number and Nature of Tests	Range of Ages or Grades	Time to Apply	Publisher	Prices	References
<b>Detroit First-Grade Intelligence Test, Group Test A</b>	Anna M. Engel	Ten pictorial tests: 1. Acquired information 2. Appreciation of similarities 3. Memory 4. Appreciation of absurdities 5. Comparisons 6. Relationships 7. Sympathy 8. Designs 9. Ability to count 10. Simple directions regarding spatial relations	First-grade entrants	20-30 min.	World Book Co., Yonkers, N. Y.	25 Booklets with record sheets, \$1.50 Examiners' Guide, 10c Specimen set, 15c	"Use of a First-Grade Intelligence Test in Detroit," <i>Jour. Educ. Research</i> , 3: Jan., 1921, 76-77. Also <i>Detroit Educ. Bulletin</i> , Nov., 1920.
<b>Intelligence Examination Delta 1 (Used in the Virginia School Survey)</b>	M. E. Haggerty	Six fore-exercises and six tests (5 non-verbal) 1. Directions 2. Copying designs 3. Picture completion 4. Picture comparison 5. Symbol-digit 6. Word comparison	Grades 1-3	30 min.	World Book Co., Yonkers, N. Y.	25 booklets with record sheet, \$1.50 Key 15c Manual Directions, 40c Specimen set, 65c	

Title	Compiled by	Number and Nature of Tests	Range of Ages or Grades	Time to Apply	Publisher	Prices	References
Holley Picture Completion Test for Primary Grades	C. E. Holley	Twenty pictures to complete, preceded by a fore-exercise. One form	Grades 1-3	15 min.	The Public School Pub. Co., Bloomington, Ill.	\$1.25 per 100 Sample set, 10c	
Kingsbury Primary Group Intelligence Scale, Form "A,"	Forrest A. Kingsbury	Four tests 1. Right answers 2. Opposites 3. Completion 4. Form	Grades 1-4	25 min.	The Public School Pub. Co., Bloomington, Illinois	\$2.50 per 100 Single copy, 10c	
Group Intelligence Scale for Primary Grades	Frances Lowell	Twenty-five tests, taken from Binet, Kuhlmann, <i>et al</i> , arranged five for each year, 5 to 9	Grades 1-3 or Ages 5-9, inclusive				Frances Lowell "A group intelligence scale for primary grades." <i>Jour. Applied Psych.</i> 3: Sept., 1919, 215-247
Primary Group Test of General Ability (Gunnison Primary Test-A.)	H. T. Manuel	Pictorial (Experimental Edition)	Grades 1-3, inclusive	40-45 minutes on each of two successive days	Dr. H. T. Manuel, Director of Educational Research, Colorado State Normal, Gunnison, Colo.	\$5.00 per 100 Specimen set, 60c Manual of Directions, 50c	



Title	Compiled by	Number and Nature of Tests	Range of Ages or Grades	Time to Apply	Publisher	Prices	References
Myers' Mental Measure	Caroline E. and Garry C. Myers	Four pictorial tests 1. Directions 2. Picture completion 3. Learning 4. Common elements	For all grades from the kindergarten to the university	20 min.	Newson & Co. 73 5th Ave. New York, or 623 So. Wabash Ave., Chicago, Ill.	1 copy 10c 12 copies \$1.00 100 copies \$5.00 1000 copies \$40.00 Measuring Minds—An Examiner's Manual, 1 copy 80c 12 copies \$7.20 100 copies \$54.00	Caroline E. and Garry C. Myers. <i>Measuring Minds</i> , Newson and Co., New York. C. E. and G. C. Myers, "A group intelligence test," <i>School and Society</i> , 10: Sept. 20, 1919, 355-360
Otis Group Intelligence Scale Primary Examination	Arthur S. Otis	Eight tests (six non-verbal) 1. Directions 2. Associations 3. Picture completion 4. Maze 5. Picture sequence 6. Similarities 7. Synonym-antonym 8. Common sense Two forms available	Grades 1-4	25 min.	World Book Co., Yonkers, N. Y.	25 booklets, with record sheet, \$1.50 Manual of Directions, 40c Specimen set, 75c, postpaid	

Title	Compiled by	Number and Nature of Tests	Range of Ages or Grades	Time to Apply	Publisher	Prices	References
<b>Mental Survey Tests; Primer Scale</b>	Mrs. Sidney D. Pressey	Four pictorial tests 1. Dot pattern 2. Classification 3. Picture test 4. Picture form-board 5. Picture absurdities	Grades 1-3	25 min.	Public Sch. Publishing Co., Bloomington, Ill.	\$2.50 per 100 Sample set, 10c	Luella W. Pressey, "A group scale of intelligence for use in the first three grades," <i>Jour. Educ. Research</i> , 1: Apr., 1920, 285-294
<b>The Mentimeters</b>	M. R. Trabue and F. P. Stockbridge	School Group 2a (Mentimeters 2, 3, 5, 16, 20, 23, 28, 18) comprises 1. Pictorial absurdities 2. Maze threading 3. Geometric figures 4. Opposites 5. Reading directions 6. Completion 7. Arithmetic 8. Range of information Other mentimeters described in book	Applicable to all persons from infants to university graduates	Varies with tests selected	Doubleday, Page & Co., Garden City, L. I.	Fifty pamphlets with stencils, record sheet, and quotient tables, \$3.25, plus transportation Half sets for 25 pupils, \$1.75, plus transportation Specimen set, 25c The Mentimeter Quotients supplied separately, free to the purchaser	M. R. Trabue and F. P. Stockbridge <i>Measure your Mind: The Mentimeter and How to Use It</i> . Doubleday, Page & Co., 1920, Garden City, N. Y.

## II. TESTS PRIMARILY FOR THE ELEMENTARY GRADES

Title	Compiled by	Number and Nature of Tests	Range of Ages or Grades	Time to Apply	Publisher	Price	References
The Dearborn Group Tests of Intelligence, Series II, General Examinations 4 and 5	Walter F. Dearborn	Ten tests (7 non-verbal) 1. Picture sequences 2. Word sequences 3. Form completion 4. Opposite completion 5. Memory ladder 6. Picture symbols 7. Mazes 8. Disarranged proverbs 9. Faulty pictures 10. Number problems	Grades 4-9	Examinations 4 and 5 will take 50 min. each. Should be given to each grade with an interval of time (preferably a class period) between them	J. B. Lippincott & Co., Phila., Pa.	25 booklets \$1.70; 100 booklets \$6; 1000 booklets \$58. Instruction booklet, 25c.	
Haggerty's Intelligence Examination, Delta 2 (Used in Virginia School Survey)	M. E. Haggerty	1. Sentence reading 2. Arithmetic 3. Picture completion 4. Synonym-antonym 5. Common-sense 6. General information	Grades 3-9 Ages 8-15	35 min.	World Book Co., Yonkers, N. Y.	25 booklets, with record sheet, \$1.50 Specimen set, 65c Scoring key, 10c Manual of Directions, 40c	

Title	Compiled by	Number and Nature of Tests	Range of Ages or Grades	Time to Apply	Publisher	Price	References
Holley's Sentence Vocabulary Scale, Series 3B	C. E. Holley	See High-School Tests					
Myers' Mental Measure		See Primary Tests					
Illinois Examination, I	W. S. Monroe and B. R. Buckingham	A group intelligence scale followed by 8 arithmetic tests and the Monroe Reading Test. The intelligence tests are 1. Analogies 2. Arithmetic problems 3. Sentence vocabulary (information) 4. Substitution 5. Verbal ingenuity (Dis-arranged sentences) 6. Arithmetical ingenuity 7. Synonym-antonym	Grades 3, 4, 5.	50-60 min.  (27 min. actual working time)	Public Sch. Pub. Co., Bloomington, Ill.	Sample set including Hand Book 25c Illinois Examination II, \$4.00 per 100 Intelligence test also printed separately, \$2.00 per 100	B. R. Buckingham and W. S. Monroe, "A testing program for elementary schools," <i>Jour. Educ. Research</i> , 2: Sept., 1920, 521-532

Title	Compiled by	Number and Nature of Tests	Range of Ages or Grades	Time to Apply	Publisher	Price	References
<b>Illinois Examination II</b>	W. S. Monroe and B. R. Buckingham	Intelligence examination same as Illinois Examination I, Arithmetic scale has 7 tests. Remainder of pamphlet has 7 tests of arithmetic and tests of reading. Two forms available.	Grades 6, 7, 8.	60 min.  (37½ min. actual working time)	Public Sch. Pub. Co., Bloomington, Ill.		
<b>National Intelligence Tests, Scale A-Scale B</b>	Prepared by M. E. Haggerty L. M. Terman E. L. Thorndike G. M. Whipple R. M. Yerkes	Two scales of 5 tests each. Scale A: 1. Arithmetic problems 2. Sentence completion 3. Logical selection 4. Synonym-antonym 5. Symbol-digit Scale B: 1. Computation 2. Information 3. Vocabulary 4. Analogies 5. Comparison (Two forms of each scale available—three more in preparation)	Grades 3-8.	30-35 min.	World Book Co., Yonkers, N. Y.	Either scale prices same 25 booklets, with keys and record sheet, \$1.60 Manual of Directions, 25c Specimen Set, 50c, postpaid	(1) G. M. Whipple, "The National Intelligence Tests," <i>Jour. Educ. Research</i> , 4: 1921, 16-31 (2) L. M. Terman and Edith D. Whitmire, "Age and grade norms for the National Intelligence Tests," <i>Scales A and B, Jour. Educ. Research</i> , 3: Feb. 1921, 124-132



Title	Compiled by	Number and Nature of Tests	Range of Ages or Grades	Time to Apply	Publisher	Price	References
Otis Group Intelligence Scale, Advanced Examination	Arthur S. Otis	1. Following directions 2. Opposites 3. Disarranged sentences 4. Proverbs 5. Arithmetic 6. Geometric figures 7. Analogies 8. Similarities 9. Narrative completion 10. Memory Two forms available	Grades 5-12	60 min.	World Book Co., Yonkers, N. Y.	25 booklets, \$1.50 Examiner's key, 25c Manual of directions, 40c Specimen set, 85c	(1) A. S. Otis, "An absolute point scale for the group measurement of intelligence," <i>Jour. Educ. Psych.</i> 9: May-June, 1918, 239-61, 323-48. (2) W. D. Armington, "Classification of junior high school pupils by the Otis Scale," <i>Jour. Educ. Psych.</i> March, 1920, 165-168. (3) V. E. Dickson and John J. Norton, "The Otis Group Intelligence Scale applied to the elementary school graduating classes of Oakland, Cal.," <i>Jour. Educ. Research</i> , 3: Feb. 1921, 106-115. (4) S. S. Colvin, "Recent results obtained from the Otis Group Intelligence Scale," <i>Jour. Educ. Research</i> , 3: Jan. 1921, 1-12.

Title	Compiled by	Number and Nature of Tests	Range of Ages or Grades	Time to Apply	Publisher	Price	References
<b>Pintners' The Mental Survey Tests</b>	Rudolph Pintner	Six tests taken largely from Whipple's <i>Manual of Mental and Physical Tests</i> and standardized on 3000 children: 1. Rote memory 2. Digit-symbol 3. Symbol-digit 4. Word building 5. Opposites 6. Cancellation	Ages 6-16		C. H. Stoelting Co., 3037 Carroll Ave. Chicago, Ill.		E. Pintner, <i>The Mental Survey</i> , D. Appleton & Co., New York
<b>Non-Language Mental Tests</b>	Rudolph Pintner	Six tests designed to be used with an accompanying set of educational tests: 1. Imitation 2. Easy learning 3. Hard learning 4. Drawing completion 5. Reversed drawings 6. Picture construction	Best results in Grades 3-8. Can be used in second grade and in the high school, but not so reliably	40-45 min.	College Book Co., Columbus, O.	Per 100, \$4.00 Manual of Directions, 50c Sample set, including manual, sten-cils, and 5 copies of both mental and educational blanks, \$1.40	(1) R. Pintner and Helen Marshall, 'A combined mental-educational survey,' <i>Jour. Educ. Psych.</i> , 12: Jan. 1921, 32-43 and Feb., 82-91. (2) R. Pintner, 'A non-language group intelligence test,' <i>Jour. Applied Psych.</i> , 3: Sept. 1919, 199-214

Title	Compiled by	Number and Nature of Tests	Range of Ages or Grades	Time to Apply	Publisher	Price	References
Mental Survey Scales, "Cross-out" Tests, Schedule E	Sidney L. Pressey	1. Verbal ingenuity 2. Logical judgment 3. Arith. ingenuity 4. Moral judgment	Grades 4-12 Ages 10-17 Norms for Low 4 to High 8		Univ. of Indiana, Bloomington, Ind.	100, with directions, score sheet, record blank, and norms, \$1.00 plus postage	(1) S. L. and L. W. Pressey, "Cross-out" test, with suggestions as to a group scale of the emotions," <i>Jour. Applied Psych.</i> , 3: June, 1919, 2: 138-150 (2) S. L. Pressey "A brief group scale of intelligence for use in school surveys," <i>Jour. Educ. Psych.</i> , 11: Feb. 1920, 89-100.
A Group Point Scale for Measuring General Intelligence	S. L. and L. W. Pressey	1. Rote Memory 2. Logical selection 3. Arithmetic 4. Opposites 5. Logical memory 6. Word completion 7. Moral classification 8. Dissected sentences 9. Practical information 10. Analogies	Ages 8-17				S. L. and L. W. Pressey, "A group point scale for measuring general intelligence, with first results from 1100 school children," <i>Jour. Applied Psych.</i> 2: Sept., 1918, 250-269.

Title	Compiled by	Number and Nature of Tests	Range of Ages or Grades	Time to Apply	Publisher	Prices	References
Omaha Group Test of Intelligence	Paul R. Stevenson	Eight tests (from 5 to 15 exercises each) 1. Likeness and difference 2. Correction of statement 3. Arith. problems 4. Disarranged sentences 5. Following directions 6. Synonym-antonym 7. Analogies 8. Range of information	Grades 3-9	20 min.	Bureau of Research, Univ. of Omaha, Omaha, Neb.		
N. Y. Board of Charities, 24 Standardized Mental Tests	Based on experiments conducted by Dr. Gertrude E. Hall	Twenty-four tests			C. H. Stoelting Co., 3037 Carroll Ave., Chicago, Ill.		Eugenics and Social Welfare Bulletins, Nos. V and VIII
A Group Classification Test	W. W. Theisen and Cecile White Fleming	1. Following directions 2. Synonym-antonym 3. Arithmetic 4. Common sense 5. Completion 6. Analogies 7. Number completion 8. Information	Grades 5-12	15 min.	Bureau of Publications, Teachers College, Columbia Univ., N. Y.		W. W. Theisen, "Group intelligence tests," <i>Jour. Educ. Research</i> ,

Title	Compiled by	Number and Nature of Tests	Range of Ages or Grades	Time to Apply	Publisher	Prices	References
A Standardized Group Examination of Intelligence Independent of Language	E. L. Thorndike	Eight tests derived largely from Army Beta 1. Digit-symbol 2. Lines dividing surfaces 3. Picture completion 4. Form completion 5. Picture analogies 6. Spatial relations 7. Easy computation	Applied to groups ranging from mental age 7½ to superior adults	60 min. (42 min. working time)	Bureau of Publications, Teachers College, Columbia Univ., New York		E. L. Thorndike, "A standardized group examination of intelligence independent of language," <i>Jour. Applied Psych.</i> 3: Mar., 1919, 13-32
Mentimeters	Trabue and Stockbridge	See Primary Tests					
Whipple's Group Tests for Grammar Grades (Revised Edition, 1920)	G. M. Whipple	1. Computation 2. Completion 3. Comparison 4. Logical selection 5. Punched holes 6. Equivalent proverbs	Grades 4-8	35-40 min.	C. H. Stoelting Co., Chicago, and Public Sch. Pub. Co., Bloomington, Ill. Also by the compiler	25 for \$1.75 Single copy, 10c Manual, 20c	(1) G. M. Whipple, <i>Classes for Gifted Children</i> , Public Sch. Pub. Co., Bloomington, Ill. (2) Helen Davis, "Validity of the Whipple Group Tests for Grammar Grades," to appear in <i>Jour. Educ. Research</i>



## III. TESTS PRIMARILY FOR THE HIGH SCHOOL AND COLLEGE

Title	Compiled by	Number and Nature of Tests	Range of Ages or Grades	Time to Apply	Publisher	Prices	References
<b>Army Alpha</b>	Committee of American Psych. Ass'n; W. V. Bingham H. H. Goddard T. H. Haines L. M. Terman Lyman Wells G. M. Whipple R. M. Yerkes	1. Following directions 2. Arithmetic problems 3. Practical judgment 4. Synonym-antonym 5. Disarranged sentences 6. Number series completion 7. Analogies 8. Information Originally used in five forms	Secondary schools and colleges and adults generally	40-50 min.	Originally Division of Psychology, Surgeon General's Office War Dept., Washington, D. C. At present Bureau of Educ. Measurements and Standards State Normal Sch., Emporia, Kansas (5 forms). Also, Bureau of Educ. Reference and Research, Univ. of Michigan, (Forms 6 and 9 only)	100 booklets, \$3.00; Manual of Instructions each 75c Sample set, 80c	(1) C. S. Yoakum, and R. M. Yerkes, <i>Army Mental Tests</i> , Henry Holt & Co. 1920. (2) <i>Psychological Examining in the United States Army</i> . Edited by R. M. Yerkes, Memoirs of the Nat'l Academy of Sciences, 5: 1921, 890 pp. (3) I. N. Madsen and R. H. Sylvester. "High-school students' intelligence rating according to the Army Alpha test," <i>School and Society</i> , 10: Oct. 4, 1919, 407-410. (4) I. N. Madsen, "High-school students' intelligence ratings according to the Army Alpha test," <i>Sch. and Soc.</i> , 11: March 6, 1920, 298-300.

Title	Compiled by	Number and Nature of Tests	Range of Ages or Grades	Time to Apply	Publisher	Prices	References
Army Alpha (continued)							(5) E. L. Noble, "University students' intelligence ratings according to the Army Alpha test," <i>Sch. and Soc.</i> , 11: Feb. 21, 1920, 233-237.
"Test VI" (Sometimes referred to as "Scrambled Alpha") Two forms available	Bureau of Personnel Research	184 items from Army Alpha, arranged in 'spiral' form: includes 1. Arithmetic 2. Synonym-antonym 3. Disarranged sentences 4. Number series completion 5. Analogies	Secondary schools and colleges and adults generally	25 min. working time	Bureau of Personnel Research, Carnegie Institute of Technology, Pittsburgh, Pa.	Limited number have been sold at 4 cents per copy	(6) M. J. Van Wagenen. "Our schools as measured by the army tests," <i>Educ. Adm. and Superv.</i> , 5: April, 1919, 63-76. (7) H. H. Goddard, <i>Human Efficiency and Levels of Intelligence</i> . Princeton University Press, 1921

Title	Compiled by	Number and Nature of Tests	Range of Ages or Grades	Time to Apply	Publisher	Prices	References
Brown University Psychological Examination	Stephen S. Colvin	Fore-Exercise A 1. Completion 2. Definitions 3. Opposites 4. Analogies Exercise B 1. Completion 2. Definitions 3. Opposites 4. Analogies 5. Arithmetic Exercise C Same five tests with different items	College Freshmen	Exercise A, 10 min. Exercise B, 30 min. Exercise C, 30 min.	S. S. Colvin, School of Education, Brown Univ., Providence, R. I.	Not yet on the market, but tests have been sold at a cost of 10c per set. Sample set, 10c	(1) S. S. Colvin, 'Psychological tests at Brown University,' <i>Sch. and Society</i> , 10: July 5, 1919, 27-30 (2) S. S. Colvin, 'Validity of psychological tests for college entrance,' <i>Educ.</i> <i>Rev.</i> , 60: June, 1920, 7-17 (3) S. S. Colvin, 'Purposes and methods of psy- chological tests in colleges,' <i>Educ.</i> 40: March, 1920, 404-416

Title	Compiled by	Number and Nature of Tests	Range of Ages or Grades	Time to Apply	Publisher	Prices	References
Junior and Senior High-School Classification Test	J. Crosby Chapman and J. B. Welles	1. Opposites 2. Arith. problems 3. Information	Junior and Senior high school	11 min.	The Dobson-Evans Co., 305-7 No. Front St., Columbus, O.	100 sheets, including directions, etc., \$3.00 1000 sheets, \$25.00	
Holley's Sentence Vocabulary Scale, Series 3 B	C. E. Holley	Based on Stanford-Binet vocabulary, but said to be a fair measure of intelligence	Grades 7-12		Public Sch. Pub. Co., Bloomington, Ill.	80c per 100, Sample set 6c	<i>First Annual Report of Bureau of Educ. Research, 1918-19, Univ. of Illinois</i>
Miller Mental Ability Test	W. S. Miller	1. Disarranged sentences combined with directions test 2. Controlled association (Vocabulary) 3. Analogies One form available	Grades 7-12	30 min.	World Book Co., Yonkers, N. Y.	25 blanks with key, \$1.00 Percentile graphs, 10c Age-grade score sheet, 10c Manual of Directions 20c Specimen set, 30c	W. S. Miller, "The administrative use of intelligence tests in the high school," See elsewhere in <i>this Yearbook</i>
Myers' Mental Measure		See Primary Tests					
Otis Group Intelligence Scale, Higher Examination, Forms A and B	Arthur S. Otis	Omnibus type, self-administering	High School and college	40 min.	World Book Co., Yonkers, N. Y.	25 booklets, with directions, etc., \$1.00 Specimen set, 85c, postpaid Manual of Directions, 40c	

Title	Compiled by	Number and Nature of Tests	Range of Ages or Grades	Time to Apply	Publisher	Prices	References
Roback Men- tality Tests for Superior Adults (prepared by the author for Simmons College)	Dr. A. A. Roback, Emerson Hall, Harvard Univ.	<ol style="list-style-type: none"> <li>1. Abstraction</li> <li>2. Problems</li> <li>3. Analogy</li> <li>4. Relations</li> <li>5. Insertion</li> <li>6. Reference</li> <li>7. Opposites</li> <li>8. Acumen</li> <li>9. Subsum- tion</li> <li>10. Directions (in later edition in- terpretation test sub- stituted)</li> <li>11. Judgment</li> <li>12. Cryptogram</li> </ol>	College students	185 min.	J. C. Miller, Jr., 5 Lauriat Place, Medford, Mass.	<p>1 copy 50c 3 copies \$1.00 12 copies \$4.00 50 copies \$15.00 100 copies \$25.00 500 copies \$100.00 Booklet with full scoring instructions, 35c</p>	
Group Tests of Intelligence	David Camp Rogers	<ol style="list-style-type: none"> <li>1. Logical conclusions</li> <li>2. Delayed recall of ideas</li> <li>3. Information</li> <li>4. Arith. problems</li> <li>5. Immediate recall of ideas</li> <li>6. Substitution</li> <li>7. Similar relation</li> <li>8. Completion</li> <li>9. Absurdities</li> <li>10. Following directions</li> <li>11. Train of associations</li> </ol>	College freshmen	60 min. (44 min. working time)	Specimen copies in limited quantities can be ob- tained with- out charge by address- ing D. C. Rogers, 319 Elm St., Northampton, Mass.	<p>Not recom- mended for general use, and no copies for sale avail- able. Devised for experi- mental purposes</p>	<p>D. C. Rogers, "Intelligence examinations and college en- trance," <i>The Smith Alumnæ Quarterly</i>, 13: Nov., 1921</p>



Title	Compiled by	Number and Nature of Tests	Range—Ages or Grades	Time to Apply	Publisher	Prices	References
Terman's Group Test of Mental Ability	Lewis M. Terman	1. Information 2. Best answer 3. Word meaning 4. Logical selection 5. Arithmetic 6. Sentence meaning 7. Analogies 8. Mixed 9. Classification 10. Number series	Grades 7-12	35 min.	World Book Co., Yonkers, N. Y.	25 booklets including 1 Manual and 1 Key, \$1.60 Specimen set 15c	
Thorndike Intelligence Examinations (Sometimes listed as "Thorndike Intelligence Examinations for College Entrance," sometimes as, "Thorndike Intelligence Examination for High-School Graduates")	E. L. Thorndike	Complete set comprises five booklets Part I, Practice Form, contains 13 Tests: 1. Directions 2. Disarranged sentences 3. Computation 4. Arith. problems 5. Information 6. Synonym-antonym 7. Practical judgment 8. Number series 9. Analogies 10. Number discrimination 11. Absurdities	High-school graduates and college students	2 hrs. and 40 min. working time plus 30 min. additional for administration	Bureau of Publications, Teachers College, N. Y.	Sample set, 50c postpaid Current issues, 50 sets, \$50.00 Back issues, 25 sets, \$20.00 Three issues yearly	(1) E. L. Thorndike, "Intelligence examinations for college entrance," <i>Jour. Educ. Research</i> , 1: May, 1920, 329-37 (2) E. L. Thorndike, "Tests of intelligence," <i>Sch. and Society</i> , 9: Feb., 1919, 189-195

Thorndike Intelligence Examinations (continued)	Computed by	Nature of tests	or Grades	Apply		
Psychological Examination for College Freshmen and High- School Seniors (Test IV in series of six tests for engi- neering fresh- men)	L. L. Thurstone	<p>12. Logical conclusions</p> <p>13. Recognitory memory</p> <p>Two other test booklets contain same 13 tests.</p> <p>Part II contains eight tests:</p> <ol style="list-style-type: none"> <li>1. Reading</li> <li>2. Sentence completion</li> <li>3. Picture completion</li> <li>4. Picture analogies</li> <li>5. Form proportion</li> <li>6. Algebra</li> <li>7. Practical information</li> <li>8. Information</li> </ol> <p>Part III has two reading tests and another sentence completion</p> <p>168 items, including</p> <ol style="list-style-type: none"> <li>1. Information</li> <li>2. Analogies</li> <li>3. Sentence completion</li> <li>4. Syllogisms</li> <li>5. Quotations</li> <li>6. Number completion</li> </ol>	Secondary schools and colleges	30 min. working time	C. H. Stoelting Co., 3037 Carroll Ave., Chicago, Ill.	<p>\$15.00 per 100 copies</p> <p>(1) L. L. Thurstone, "Mental tests for college entrance," <i>Jour. Educ. Psych.</i>, 10: 1919, 129-142</p> <p>(2) "A cycle-omnibus test for college students," <i>Jour. Educ. Research</i>, 4: Nov. 1921, 265-278</p>
Mentimeters	Trabue and	See Primary				



# **PART II**

## **THE ADMINISTRATIVE USE OF INTELLIGENCE TESTS**





# CHAPTER I

## INTELLIGENCE TESTS AND INDIVIDUAL PROGRESS IN SCHOOL WORK

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Every new movement in education calls for someone to repeat the warning dictum of Emerson: An expense of ends to means is fate. We are too often satisfied to exemplify a method or use a means without critical examination of the ends we are serving; and whenever our zeal or our narrowness puts us into that position, we are giving up our control of the situation and allowing ourselves to act in automatic fashion in response to the demands of the method or means in question.

There may be little danger that those who have worked constructively in the development of mental tests will fail to realize the limitations of them or be content with the use of them for its own sake. Probably, also, most administrators will ask how the tests can help in solving certain pressing problems. There is need, however, for more than this. Now that the tests have been developed to the point where we can say positively that they do serve with considerable success their immediate purpose of distinguishing groups of children on the score of differences in intelligence, it is time to review constructively our whole theory of educational organization with respect to the individual child.

Mental tests distinguish individuals in a new way. They give us information we have never had before, in a reliable form, about the status of any given child. They put us, therefore, in a new position with respect to our treatment of individual children. Accordingly, it is well to make sure that we know what we want to do for the children whom we can thus more effectively single out for special treatment.

The movement to adjust the school to the needs of individual children has a history of some length and much interest. In Ameri-

can schools individual instruction gave way to class instruction as a matter of practical necessity. We could not teach all the children economically until we had developed the technique of class teaching. Not long after the modern scheme of grading was established, it became clear that it had led to various evils and injustices. Since then, many schemes have been proposed and tried for handling large numbers of children without sacrificing the individual to the mass. Some of these are administrative schemes—plans for the grouping of children for purposes of grading and promotion, such as the so-called “Cambridge plan.” Some involve the formation of special classes and the hiring of special teachers for work with selected individuals, as, for example, in the Batavia system. Some are schemes of method, such as the Courtis Practice Tests in Arithmetic. From one point of view, mental tests, as well as subject-matter tests, may be considered as new means for accomplishing the end for which all these other plans have been devised, namely, the individualization of instruction. If such plans as have been heretofore proposed were but external and limited in their application, we are now in a position to give them new and more fruitful trial. And just because we have a new means for individualizing instruction, we ought to ask again what we want to accomplish by it and what is the best way to do it.

We want to know more about children as individuals in order that we may deal with them as individuals. But that is not an end in itself, for individual treatment is just one mode of achieving the purposes of education and may be variously combined with treatment by groups. Individual treatment must itself be seen as a means to an end.

Furthermore, instruction is but one phase of education, and there is always the possibility that a new means for the improvement of instruction may lead to an overemphasis on intellectual development as compared with physical development or with moral and social development. There are real dangers here which ought now and then to be re-stated with fresh emphasis.

The ideal of complete development for every individual up to the limit of his capacities is extremely attractive. In general, also, it is probably a safe guide for practical effort if it be supplemented

by the notion that individual development must be in accordance with a definite plan which excludes some possibilities by the very fact of choice of others. William James made clear, in a famous passage, the necessity for choosing the self one wants to be. Within the limits of such a choice (which can not, of course, be made at once or very early in life), we ought to try to give every individual the chance to develop to his full stature. There are plenty of external limitations to this effort, for poverty, disease, and injustice will set at naught much that education attempts to do for children. All the more, therefore, should the school attempt to give each child his full chance. But we must remember to take the individual in his wholeness. Just now, I believe, there is real need for emphasis on physical development, for although some schools have learned how to watch bodily growth and adjust instruction to it, there is a general tendency to drift into fads of physical education rather than to safeguard health by simple means and allow time and space for natural growth. There is need, also, for renewed insistence on the importance of social and moral development—that maturing of character in the give-and-take of group enterprises, on the playground and elsewhere, for which no amount of book-work can be substituted.

All this, I realize, only states in dogmatic fashion what has been said more amply and convincingly by many others. G. Stanley Hall long ago warned us against precocity and a lopsided intellectual development. John Dewey has led a generation of teachers in their effort to manage school work so as to favor moral and social growth in children. The whole vocational-guidance movement is based on the assumption that each of us must make progressive discovery of the kind of person he wants to become. It would be useless to re-state these positions if it were not for the danger that mental tests will lead to new and uncritical attempts to achieve individual development on a partial view of what individual development means.

I have observed especially a tendency to assume that the only right and possible thing to do for bright children is to promote them rapidly through the grades. Heretofore, this has usually been done by “skipping,” or at times by grouping children in rapid-

advancement classes. It has been done in the main on the basis of the ability of the children in question to cover quickly the work laid down in the course of study. Every practical schoolman knows that it has often led to disaster—that the child who has skipped a grade or done the work of two grades in one year has failed later in his course or broken down as the result of pushing. Mental tests are likely to help in avoiding that sort of failure, for they will enable principals to distinguish the children who are merely bright in the mechanics of school work from those who are fundamentally superior in intellectual ability. It does not necessarily follow, however, that there is nothing to do with a bright child, even if we are assured that he is genuinely of superior mentality, except to promote him rapidly through the grades. Here is a practical issue of administration in the elementary schools which the development of mental tests ought to bring squarely before us: Is rapid advancement for the mentally superior so generally desirable as to justify the formation of rapid-advancement classes or other schemes for putting these children through school faster than their fellows; or are there other and better ways of dealing with them?

An administrative scheme usually leads to an effort to make the machinery move. If classes for rapid advancement are formed, principals, teachers, and parents will unite to see that children are put into them. This will lead, I believe, even with the use of mental tests, to unfortunate results. In the first place, mental superiority will be used as a ground for grouping children without sufficient reference to physical development and social maturity. In the second place, many children will be pushed forward through the course of study when what they ought to have is an enrichment and differentiation of school work.

Suppose a class of mentally superior children has been selected on the basis of school marks and mental tests. Among them there may be many children who are big and strong and socially mature. There is at least some evidence to show that mental superiority goes pretty generally with physical superiority. Others, however, will not be well grown nor well developed in their powers of leadership or of cooperation. What does such a group need? Does it need the chance to go through the common branches of two grades



in a single year, or does it need, rather, shorter periods and more effective methods of drill and thus a saving of time for wider reading, dramatization, manual work, outdoor play, and other interesting and really educative enterprises, carried on by groups and largely in the form of projects?

There is no doubt that some children can stand being advanced rapidly through the grades, that they need to catch up with children of their own stage of development, or ought to be grouped with children chronologically older than themselves. To deal, however, with all children of proved mental superiority as if rapid promotion were the only way to deal with them is to confess poverty of resources and ingenuity. The whole child ought to be taken into account. More than that, natural social groupings ought to be taken into account. To select certain children for rapid advancement and to push them ahead of their fellows is not necessarily good for them, for the group they leave, or for the group they join. There is no evidence that pupils who enter high school or college young do not do well in their studies or that they get into disciplinary difficulties. Indeed, I have myself shown (*Youth and the Dean, Harvard Graduates' Magazine*, June, 1913) that the younger a man is when admitted to Harvard College, the greater is the likelihood that he will do well in his studies and keep out of trouble. It can not be said, however, that every boy or girl who is capable of saving time in his education by rapid promotion ought to be allowed to do so. Something should be said for normality. Health, companionship, and happy participation in the activities of his companions are considerations which should all be taken into account in dealing with every individual case. Education is a means whereby the individual may have full development among his fellows and for the common good. No short-sighted view of what individual development means should lead us to separate a bright child from the companions with whom he can be happiest and from whom he can learn most through common work and play.

It is true that those who go into the professions are often forced, in this country, to spend too many years securing an education. That is a problem in the adjustment of our scheme of education to the civilization it is serving. We ought not to conclude



that our program is properly outlined and that the thing to do is to hurry the bright ones through it while those of average power or less go on more slowly. Nature has a program in the development of children of which we must also take account, and it may be far better to curtail or telescope the higher stages of education, which come after natural development is more nearly completed, than to run the dangers of a forced pace during the earlier years.

Undoubtedly, children of superior mentality ought not to waste their time in the classroom while the teacher is struggling with the difficulties of duller minds. They ought to go through the minimum essentials at the faster rate of which they are capable. But before we assume that they ought on that account to be encouraged to complete their work in the grades and in the high school in less than the usual time, we ought at least to experiment with the plan of allowing them, instead, to use the time they save on school routine in freer, happier, and more rewarding ways.

This article is not an "attack" on classes for gifted children. There is ample evidence that gifted children can now be selected with satisfactory accuracy. It has been proved that they can be grouped for special treatment to their general advantage. What has not been proved as yet is the value, in any large administrative policy for handling classes of the gifted, of the element of rapid advancement. This article is but a "word of warning" on that score, from one who is not an expert in testing and who has had no part in the recent highly valuable experimentation in the treatment of children of superior mentality.

## CHAPTER II

### THE GROUP INTELLIGENCE TESTING PROGRAM OF THE DETROIT PUBLIC SCHOOLS

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There has been maintained in Detroit, for about ten years, a system of special classes for backward children and from time to time other units have been added, so that at present there is a department of special education equipped to care for pupils who, for any reason, do not progress properly in the regular grades. The Psychological Clinic, one of the earliest of these units to develop, is the agency through which transfers to the various special classes are effected. This clinic has had a rapid, but very solid, growth and enjoys the confidence and the support of the teachers and principals to a degree unusual in American cities. There are on the staff of the Clinic eleven trained psychological examiners and four social workers, all of whom give their full time to the work of the Clinic, and the Clinic has also its own physician.

Prior to the war, the service of the Psychological Clinic was rendered, of course, entirely through individual tests. The successful development of group tests of general intelligence in the United States Army in 1917 and 1918 and the adoption of the group method by hundreds of school systems is now an old story. Owing to its well organized psychological facilities, and especially owing to the progressive attitude of the Detroit teaching public, the inauguration of group mental tests in this city was brought about promptly. It is not the purpose of the writer to give a detailed account of all of the work that has been done in this field in Detroit, but rather to mention a few of the most important phases of the work and to present a statement of the organization and administration of the testing.

The studies of elimination and retardation of the past few years and the discovery by psychologists of wide differences in native ability among pupils have led many school people to the conclusion that education could be made much more effective if there were available a means of classifying pupils on the basis of mental ability, and with this in view many experiments have been and are still being carried on in various cities. In Detroit it was believed that to give the new plan of classification a fair trial it would be wise to classify by means of a group test all pupils entering school for the first time, and then to maintain intact the divisions thus formed so far as possible throughout the six years of the elementary course. The plan is to adjust the education of these groups of children of different mental levels entirely through the curriculum and the methods of teaching rather than to provide a scheme whereby the most capable pupils complete the course in less time. Briefly, our plan is this: for the "average" ("Y") group, comprising the middle 60 percent of the pupils, the present course of study; for the "backward" ("Z") group, comprising the lowest 20 percent, a simplified course of study containing minimal essentials sufficient to pass the pupil from grade to grade, and for the "superior" ("X") group, comprising the 20 percent at the top, an enriched course of study. Thus, all pupils, except the few very backward ones who cannot keep up even with the "Z" group, should complete the six years of elementary education without repeating grades. The few "Z's" who fall by the wayside will, of course, be the candidates for the special classes for backward children. The many interesting educational problems raised by this new classification must be omitted from this discussion, save to mention enough to give the background for what follows.<sup>1</sup>

At the time our plans were being made, there were few group tests available which were suited to children six years of age. After careful study of the problem and some testing with available group scales, it was decided to construct a new test for our purpose. Dur-

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<sup>1</sup>A study of the first year's results of our new classification is now in progress and an account will be given in a forthcoming number of the *Detroit Educational Bulletin*, prepared by Dr. Charles S. Berry, Director of Special Education, Detroit Public Schools.

ing the spring and summer of 1920, the Detroit First-Grade Intelligence Test was developed and perfected.<sup>2</sup>

The test consists of ten separate tests, as follows:

- |                 |                  |
|-----------------|------------------|
| 1. Information  | 6. Relationships |
| 2. Similarities | 7. Symmetries    |
| 3. Memory       | 8. Designs       |
| 4. Absurdities  | 9. Counting      |
| 5. Comparisons  | 10. Directions   |

Most of the material is presented through pictures. The test was given for the first time in September, 1920, to about 11,000 children then entering our B-1st (lower first) grade and is now given regularly to all children entering the first grade. About 80 percent of these children attend the kindergarten, so it is possible for us to test them just before they leave the kindergarten and thus have the ratings in the hands of the schools at an early date. The examining is done by a corps of kindergarten teachers who have been trained for the work in special courses offered in Detroit Teachers' College by a member of the Clinic staff. The time required for the examining is about a week, and it takes ten days additional to score the papers and prepare typewritten lists of the results. A perfect score in the revised Detroit First-Grade Test is fifty points and letter ratings are assigned in accordance with the outline presented in the following table:

DETROIT FIRST-GRADE INTELLIGENCE TEST: RANGE OF POINTS FOR LETTER RATINGS

Score	Percent	Rating
0 - 12	8	E
13 - 17	12	D
18 - 23	18	C-
24 - 30	24	C
31 - 35	18	C+
36 - 39	12	B
40 - 50	8	A

The "A" and "B" pupils who constitute the highest 20 percent are recommended for the "X" group, the "C+", "C", and

<sup>2</sup>The test as originally constructed contained fifteen separate tests, five of which were dropped in the course of our first revision. The test as used at present, known as the Detroit First-Grade Intelligence Test, First Revision, is distributed by the World Book Co., Yonkers-on-the-Hudson, New York, and Chicago. Copyright, 1920, by Anna M. Engel.



“C—” pupils for the “Y” group, and the “D” and “E” pupils for the “Z” group. The score is not adjusted on an age basis, as most of the pupils entering Grade B-1 are homogeneous as to age. The highest score thus far recorded is 48 and the lowest 0. The first and third quartiles are 19 and 34, respectively, and the mid-score is 27 (true median, 27.59). The results thus far obtained indicate that this test classifies pupils from 6 to 7½ years of age with reasonable accuracy. Beyond this age it is not recommended. It is easy to administer, as the directions have been reduced to a minimum, and it requires no paraphernalia whatever. The time required for the test is from twenty to thirty-five minutes, according to nationality and home environment of the pupils tested. It is generally unwise to include more than ten or twelve children in a group.

Since September 1, 1920, the testing of B-1st pupils has constituted about 40 percent of our work with the group tests. Thus the testing of beginners in school is one of the most important functions of the group examining, as it should be.

Group tests, secondly, are given to pupils who are two years or more over-age for their grade, and to those who are persistently backward in their school work, to be followed later by individual tests of those making the lowest scores, and the subsequent transfer of some of these pupils to special classes. This examining is done in all elementary schools. Priority of this examining is decided, in part, by the availability of space for special classes in different parts of the city.

Group tests, thirdly, are given to children who are candidates for entrance to Special Advanced Classes, where there is an enriched curriculum suited to the requirements of unusually gifted children. These classes are now maintained in the 7th and 8th grades and are located at several convenient centers. Provisional candidates for the Special Advanced Department are chosen, of course, from the upper 6th grade and must be recommended by their teacher and principal. They must be either at grade or accelerated for their chronological age and must be marked either 1 or 2 for their school work (Detroit pupils are marked on a scale of 1 to 4). We then administer two group tests to these children and select for trans-



fer to the Special Advanced Department only those pupils whose scores are within the highest 10 percent in both tests. Since this method of selection has been used, the teachers in this department all report that the children are definitely of superior mentality and that they practically always make good in their classes.

The examining thus far outlined is done at the initiative of the Department of Special Education of which the Clinic, as has been said, is a component. Regular requests for group tests originating in the central offices of administration are for the examination of all new teachers and substitute teachers and of applicants for clerical positions in the offices of the Board of Education. Of more interest, perhaps, is the examining which is done at the request of the schools themselves, for the purpose of classifying pupils on the basis of mental ability. Thus far more than 10,000 children have been given group tests with this classification in view, always at the direct request of the principals of the schools. Four of the five intermediate schools have had their entire memberships examined. Requests for group tests in the senior high schools concern usually pupils in the A-12th grade, who are soon to be graduated, and who will be likely to require an intelligence rating in their entrance credentials when they enter the university. Four of the nine senior high schools have requested group tests of 9th and 10th grade pupils, for the purpose of assignment to sections in English and other subjects, and, in two instances, for assignments to home rooms. Two senior high schools have had their entire memberships examined. Eight elementary schools have had their entire memberships examined.

We have had a number of requests from the Department of Research for group tests where the scores are desired as a basis for important experimental investigations. Two such cases have been the examination of about 550 children in one elementary school and 300 in two others, to provide groups of like mentality for two experiments, one in reading and the other in measuring the effects of moving picture instruction. Recently we have examined about 400 high-school pupils as a basis for an extensive experiment in supervised study.

It is difficult to know just what is the best method of interpreting group test scores for the use of principals and teachers. At present we are using letter ratings for each test, similar to the plan used in the U. S. Army and corresponding to our own scheme adopted for the first-grade classification. Our plan is to tabulate the numerical scores of a given age group and then to assign the letter ratings in such a way that the highest 8 percent of the pupils are rated "A", the next 12 percent "B", etc., according to the outline presented in the table above. We never make these letter ratings until we have as many as three hundred unselected cases for a given age. The advantage of this plan is that it furnishes a basis of comparability for pupils of different ages. Of course, the different tests which we use vary somewhat in details, but not in their general nature. A six-year-old pupil who is rated "A" resembles a twelve-year-old pupil who is rated "A" in that each is among the highest 8 percent of his age group in intelligence.

The tests which we use regularly are as follows:<sup>3</sup> in Grade B-1, the Detroit First-Grade Intelligence Test; in Grades A-1 to A-4, a special test adapted for Detroit from the Army Beta, known as Test "X"; in Grades 5 and 6, a special Detroit test (Detroit Army Test) adapted from the well-known Army Alpha; in the intermediate school, the Terman Group Test, and in the senior high school and for the examination of teachers and other adults, the Army Alpha. All tests are given by the Clinic staff, and scored in the offices of the Clinic. This is done for several reasons, the most important being that the necessary uniformity of the examining and scoring procedure is insured when the work is in the hands of one trained staff. Another reason is that the group intelligence tests, themselves novel in character and differing ma-

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<sup>3</sup>The tests named above are those which we are using regularly during the present year. We have made some use of other tests, as follows: the Pressey Primer Scale for the examination of pupils in the primary grades; Whipple's Group Tests for Grammar Grades in examining special advanced candidates and the National Intelligence Test, Scales "A" and "B," in grades three to eight. Doubtless some of these and others will be used again. We feel that the important thing is the use which is made of the test results rather than the specific test administered, though the latter is important. We tried to select primarily a test which gives the proper score distributions, but we are obliged to give some consideration, also, to such factors as length of time required for giving the test, time involved in the scoring and reporting, procedure, and also expense.

terially from the usual schoolroom tasks, appear to attract somewhat better performance from the pupils when administered by a stranger. This does not mean to say that the tests might not be given as well by the teachers—which might easily be the case—but simply that the uniform procedure and the elimination as far as possible of the personal element, both so desirable in work of this sort, can best be secured by using specially trained examiners. With the group testing in the hands of the teachers, themselves, there would be lacking the facilities for making the proper statistical interpretations based on a large number of cases, and for making letter ratings and the like, all of which is quite important.

In this connection the question has been raised: might not our system of group intelligence testing, apparently confined to one agency of the schools, operate to keep the benefits of the tests away from some interested teachers and principals? This is a misapprehension which cannot be removed too soon. So far as our facilities permit, with the exception already noted, we do any examining requested by any school where the principal and teachers wish to make use of the results. By this arrangement it is believed that in the long run the testing will be much more valuable. Rendering psychological examining service in response to requests in a school system containing 150,000 pupils is a task of some magnitude and it challenges the best efforts of our staffs. However, it is our earnest desire that our work shall not be limited to the extent that we become merely an examining agency. Thus we are receiving an increasing number of requests from the schools for specific recommendations as to placement of pupils. We wish to develop this phase of our work to a point where we can, by our recommendations, bring about in the different classes as nearly as possible uniform mental levels. This will not, of course, bring us into conflict with the function of the individual psychological test, which is an instrument for diagnosis while the group test is an instrument for classification. But we wish this development to occur in response to a need rather than as a consequence of an executive order. It would be possible for the Superintendent of Schools to direct that all pupils in the elementary and high schools should be given a mental test once annually. Many obvious advantages would accrue from such an arrangement and it is probably quite

true that there is a tendency toward just such a situation, as has recently been noted by Professor Terman. We feel that our plan of giving the tests (with the exception of grade B-1) upon the request of the schools is more satisfactory than a compulsory arrangement. To indicate the interest shown by the school people, it may be mentioned that in the ten months between September, 1920, and June, 1921, 58,000 individuals were given group tests in Detroit. As this is written (November 18, 1921,) we have exceeded 20,000 this year.

The group tests of intelligence have been developed in response to a need for some means of ascertaining the fundamental individual differences in native ability which we now know to be among the most striking phenomena of mental life, and of using this information for a better basis of classification of individuals for instruction or for other purposes. The administration of the tests constitutes an effort to be useful to the teachers and others in charge of the training of the pupils whose gifted or limited mentalities form the raw material of the educative process. We believe that in their proper field group intelligence tests can be a very great help to any teacher in any school; they will solve many maladjustments at once and save much of the labor and discouragement always brought on when pupils are attempting to do work that is unsuited to their ability. The group test is not, however, an instrument for the *analysis* of the difficulties of individual pupils: it is an instrument of *classification*; it establishes the intelligence-group to which the pupil will almost surely be found to belong and in which there is every reason to believe, other things being equal, that he will do his best work. For the backward pupil who makes the "E", or lowest, rating by the group test, or the pupil of unstable or erratic temperament, the group test is not enough. Here a study of the case is of the utmost importance, and this study should take the form of an individual test, accompanied by a medical examination and a social history.

We are gratified by the constant and substantial increase in the number of group mental tests in Detroit because it reflects a great interest on the part of the teachers and principals and because the teaching public shows an earnest desire to make use of the test results. Such a genuine interest, it is a pleasure to serve.



## CHAPTER III

### THE USE OF INTELLIGENCE TESTS IN THE CLASSIFICATION OF PUPILS IN THE PUBLIC SCHOOLS OF JACKSON, MICHIGAN

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There are numerous school systems, apparently, in which more or less systematic use has been made of intelligence tests, but in which the scores obtained from these tests have not been put to the fullest possible use for the improvement of organization, placement, and instruction. Naturally, the extent to which reclassification can be effected on the basis of test results is dependent upon the general lay-out of the system in question, the distribution of ability in its population, its financial resources, the availability of classrooms and teachers, and many other factors. It is probable, indeed, that no scheme could be laid down in detail that would fit any large number of school systems. Nevertheless, it has seemed likely that an account of the manner in which a plan of intelligence testing has been related to a system of special classes in one American city might prove helpful to those who are undertaking similar work in other cities of similar size and character.

#### THE GENERAL PLAN OF SCHOOL ORGANIZATION AT JACKSON

##### 1. The Regular Classes

Jackson is an industrial city of approximately 50,000 population and enrolls in its public schools some 7,000 children. The elementary schools include the kindergartens and grades low one through high six. Two intermediate schools, one on either side of the city, include grades seven, eight, and nine, while the single central high school includes grades ten, eleven, and twelve. The regular grades of the system, therefore, conform to the familiar six-three-three type of organization.



## 2. The Special Classes

There are at present seven types of special classes in Jackson (eight if we count the upper and the lower auxiliary classes as distinct types). So far as my information goes, I judge that Jackson, under the progressive leadership of Superintendent Marsh, has gone farther than most cities of its size in the elaboration of its system of special classes; at least there are numerous systems larger than ours in which special provision for atypical pupils is limited to a few ungraded classes and perhaps provision for individual promotions of gifted children.

The special classes for the blind (conservation of vision classes), for the deaf, and for the anemic are in the main recruited through other departments than the Department of Measurements<sup>1</sup> and through other agencies than intelligence tests. For this reason no further reference will be made to them or to their work in this discussion.

The remaining special classes comprise four types, each of which demands explanation. The facts concerning these classes are for convenience, summarized in Table 1; they are set forth in more detail in what follows.

a. *The "Ungraded Classes."* There are ungraded rooms on each side of the city to which children are sent who are known to be definitely feeble-minded. These rooms draw their pupils from any of the elementary grades and even from the intermediate schools, though in practice children of this mental caliber are rarely found above the fourth or fifth grade of the regular classes. As a rule, the pupils assigned to a room of this type complete their school careers within its walls and are not returned to the regular classes.

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<sup>1</sup> The Department of Measurements was organized at Jackson in the fall of 1920. It ought to be added that several types of special classes were in operation in the system before the establishment of the Department. The work of the Department, however, has placed the selection of pupils for these classes on a more systematic and scientific basis and has also led to the establishment of other types of special classes, notably the auxiliary classes. Readers who are interested in the operation of such departments and in their relation to other branches of the school system will find an account of our experiences in Jackson under the title "Some Problems Arising in the Administration of a Department of Measurements," *Jour. of Educ. Research*, Jan., 1922, pp. 1-20.

TABLE I.—ORGANIZATION AND RECRUITMENT OF SPECIAL CLASSES IN THE PUBLIC SCHOOLS OF JACKSON, MICHIGAN

Name	Grades	C. A.	M. A.	I. Q.	Tests Used	Criteria for Admission	Curriculum	Length of Stay	Number Enrolled	Number Teachers
A. Ungraded	Kg. and above	Any age	4½-10	Below 70	Binet for final. National and Haggerty, Delta 1 for preliminary	Definitely feeble-minded	Academic work in so far as the child is capable. Development of motor control. Pre-industrial training. Training for citizenship.	Until compulsory age-limit is reached	108	6
B. Opportunity	5 and 6	14 and above	10 and above	75 and above	National, A 1 Binet	Mental ability and school training equal to or better than that of a 5th-grade child	Academic work of 5th- and 6th-grade level, together with 7th-grade work in shop, gymnasium, cooking, etc.	Until 6th-grade work is completed.	80	2
C. Auxiliary 1. Upper	4, 5, 6	12 and above	9 and above	70-85	National, A 1 Binet	I. Q. between 70 and 85. Poor school record	Minimum essentials of the regular course given at a slower rate	Until ready for opportunity or regular classes	48	2
2. Lower	Kg.-3	below 12	4½-9	70-85	National, A 1 Haggerty, Delta 1 Binet	I. Q. between 70 and 85. Poor school record. Occasional cases of normal intelligence and pedagogical disability.	and by somewhat different methods.	Until ready for upper auxiliary or regular grade	72	3
D. Speed	3B-6A		1½ yrs. or more accelerated	115 or above and M. A. equal to the grade	National Intelligence A 1 Whipple Group tests, Haggerty, Delta 1, Binet	85th P. C. or better in age group on group tests	Two semesters of the regular grade work completed in one	One semester. In rare cases two semesters	90	3

These pupils range in chronological age from  $7\frac{1}{2}$  to 16 years, in mental age from  $4\frac{1}{2}$  to 10 years. The course of study and the methods of instruction are similar to those prevailing in ungraded rooms generally in American school systems. The organization of this type of class is such, however, that the work is departmental in plan.

b. *The "Opportunity Classes."* The "Opportunity" rooms are located in each of the two intermediate schools. They are designed to meet the needs of pupils who are "over-age" (14 years and over), of a fair degree of mental ability (mental age, 10 years and above), but who have become so retarded pedagogically as to be doing only fifth- or sixth-grade work. The plan is to give these pupils instruction suited to their needs and at the same time to give them an opportunity to associate with children more nearly their own age. Their course of study includes materials and subjects characteristic of the grades mentioned, but in addition they may earn credit in some regular seventh-grade subjects, such as shop, gymnasium, cooking, printing, sewing etc. It is hoped that by this course of study their interest in school work will be prolonged a few years more and that they will be better equipped to meet the demands of life after they have left school.

c.1. *The "Upper Auxiliary Classes."* The operation of ungraded classes in any school system soon reveals the needs of a group of pupils who are not sufficiently inferior mentally to be placed in these ungraded classes, but who are at the same time not sufficiently capable mentally to keep the pace of the regular classes. In our system the needs of this group of so-called "slow-dull" pupils are being met by the establishment of another variety of special class. These classes, to which the term "auxiliary" has been applied, were put in operation in September, 1921. They may be regarded as an extension downward of the Opportunity Classes just described. The "Upper Auxiliary Classes" are composed of pupils 12 years old and above chronologically and about 9 years or more old mentally. Their intelligence quotients are, then, between 70 and 85. As a group they are characterized, as might be expected, by poor school records; in fact, 80 percent of them have

failed from one to four times and 50 percent of them have been conditioned from one to three times. After transfer to the auxiliary rooms they carry on work of the fourth, fifth, and sixth grades, but stripped to the "minimal essentials" and conducted at a slower pace and by somewhat different methods than in the regular grades of the same scholastic level. At present there are in operation two rooms of this sort, enrolling 48 pupils.

c.2. *The "Lower Auxiliary Classes."* These classes are composed of pupils below 12 years of age chronologically and under 9 years of age mentally. Their intelligence quotients, like those of the pupils in the upper auxiliaries, range from 70 to 85.<sup>2</sup> Here again the school records are poor; 60 percent have failed from one to four times and 16 of the 72 pupils now in the three rooms of this type have been conditioned from one to five times. The work undertaken ranges from that of the kindergarten to the third grade, and, as in the upper auxiliaries, is limited to the essentials and conducted at a slower pace and by somewhat different methods from those prevailing in the regular grades.

It may be noted in this connection that the classification of pupils by intelligence tests has given new emphasis to the demand for a revision of the course of study and methods of instruction to meet the needs of pupils whose intelligence differs so clearly from that of the "average" pupil. In Jackson we are trying to devise new ways of teaching the essentials to these duller pupils. Clay work, games, tools, charts of individual accomplishment, projects and other devices are being used to stimulate interest, and monthly records of school work are being kept to indicate the progress attained under these modified conditions. Similar work is under

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<sup>2</sup> On account of certain geographical difficulties in the transfer of pupils to the ungraded classes, a few definitely feeble-minded pupils have been temporarily placed in the lower auxiliaries, but these pupils are to be transferred again to ungraded rooms as soon as the difficulties of transportation can be met.

There are also two or three special cases of children who are normal in mental ability but handicapped by a particular pedagogical disability, notably the inability to read, who have been put into the lower auxiliary classes where it is hoped that the modified procedure and the opportunities for individual instruction will enable them to bring up their performance to the level where they can resume regular grade work.



way in many other cities, and it is not too much to hope that in time there will emerge a satisfactory program with modified textbooks, modified methods and modified subject matter that will effect far-reaching improvement in our training of these pupils.

*d. The "Speed Classes."* The so-called "Speed Classes" in Jackson are at present three in number, with an enrollment of 90 pupils. The rooms are situated on either side of the city and are designed, as their name implies, for pupils of superior ability and attainment. Pupils are admitted to these rooms from the upper second through the upper fifth grades. Generally they remain in the speed room for one semester where they do the work of two regular semesters and are then returned to the regular classes; occasionally, exceptionally capable pupils are allowed to remain two semesters in the speed room, *i.e.*, to accomplish two years' work in one year. The selection of pupils for these rooms is mainly effected by the use of group intelligence tests.<sup>3</sup>

The criterion for admission is the attainment of at least the 85th percentile in their *age* group (due regard being taken for the proper relation between mental age and grade); this means that the pupils selected must have equalled or exceeded the median score for children two years their senior, or in other words, that they must be two years or more accelerated mentally.<sup>4</sup> The opinions of the teachers of the pupils provisionally chosen by the group tests are always solicited. Usually these opinions confirm the results of the intelligence tests. If, however, the child's classroom performance does not seem to warrant his transfer to the speed room, an individual examination by the Stanford Revision of the Binet test is usually made. In cases where the child's group test record is unusually good (90th percentile or better), but the teacher's judgment is adverse to the transfer, the elementary supervisor is usually consulted with regard to the professional skill and critical

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<sup>3</sup> The group intelligence tests employed for the selection of candidates for the speed rooms have been the National Intelligence Tests, the Whipple Group Tests for Grammar Grades, and the Haggerty Delta 1 (for the younger pupils). Recent experience shows that the use of two such group tests insures a much more reliable selection.

<sup>4</sup> This is the criterion with the group test; with the Binet some pupils have been selected who were accelerated only one and a half years.



judgment of the teacher in question; if then it turns out that the teacher's standards are unusually high or her tendency is to place undue emphasis upon drill and the mechanics of subject matter, the child has been given a trial in the speed room without further examination of his intelligence.

## THE INTELLIGENCE TESTING PROGRAM AT JACKSON

### 1. Group Intelligence Testing

Before the Department of Measurements was created, pupils had been selected for the special classes on the basis of the teachers' estimates only, with the exception of the ungraded room in which case pupils adjudged to be feeble-minded had been referred for a Binet test to the teacher of this room, who then admitted the most needy. The policy of the Department of Measurements was to utilize from the start the system of special classes then in operation, but to put the selection of children for these classes upon a more comprehensive and systematic basis. To this end the National Intelligence Test, Scale A, Form 1, was given at the outset to all pupils from the low-third through the high-sixth grades, inclusive. By giving careful preliminary instructions to the teachers, over 2500 pupils were tested simultaneously. The test blanks were then scored by the teachers, and forwarded to the office of the Department, where they were re-scored, and where distributions were made, grade medians for the city and for each school were computed, and age percentiles were determined.

We quote here a paragraph of explanation concerning these percentiles that has appeared elsewhere.<sup>5</sup>

"Since most of the information concerning the location of children in the grades is familiar to teachers and supervisors in terms of mental age, it was felt worth while to translate the scores of the National tests into 'Jackson mental ages.' This was accomplished by regarding the median score of pupils of each age group as the standard score for the mental age as well as the chronological

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<sup>5</sup>G. M. Whipple. "The National Intelligence Tests." *Jour. Educ. Research*. 4: June, 1921, pp. 28-29.

age of the group in question. Thus, all pupils aged eight (over eighth birthday and under ninth birthday) were distributed in such a way as to locate the median and all the other deciles, and this median was regarded as indicating a mental age of  $8\frac{1}{2}$  years. The medians for  $9\frac{1}{2}$ ,  $10\frac{1}{2}$ , and  $11\frac{1}{2}$  years were located similarly and points midway between these medians were taken as the scores indicative of mental ages of exactly 9, 10, and 11 years. The amount of overlapping was shown graphically by the percentile chart, and this chart became directly useful in locating pupils of any desired degree of deviation from the standard adopted for a given grade or group. Thus, pupils were drawn off for consideration in connection with ungraded classes and speed classes, for double promotions, etc.”

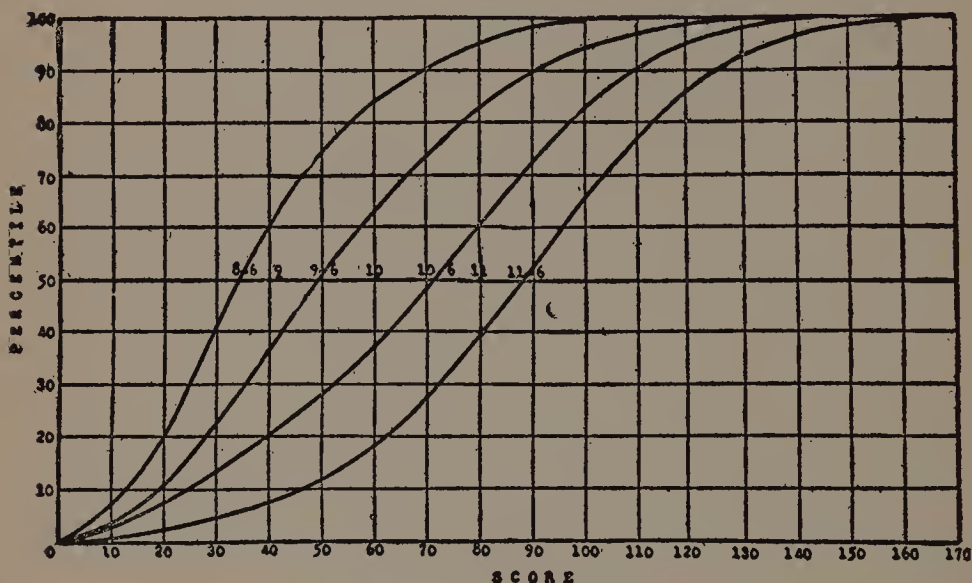


FIGURE 1.—PERCENTILE CHART FOR THE NATIONAL INTELLIGENCE TEST, SCALE A, FORM I (JACKSON, MICHIGAN)

“It will be understood that in this chart each of the four age-groups of pupils has been reduced to a theoretical 100 pupils. The figures on the base line are the scores obtained; the figures on the vertical lines are the numbers of pupils in order of excellence. Thus, in the group aged 9 years (median age approximately 9 years, 6 months) the twentieth pupil in a hundred counting from the poorest pupil scores 28, the fiftieth (or median) pupil scores 49, the eightieth pupil scores 87, etc. Or, again, 25 percent of the 8:6 group score as high as the median of the 9:6 group, etc.”

On the basis of these scores and computations, then, the task of placing pupils in the special classes appropriate to their needs was begun. It is perhaps not necessary to explain that individual examinations were given to many pupils; in fact, invariably given before transfer to the ungraded rooms, though the group tests even here were of decided usefulness, since all pupils whose group test scores ranked at the tenth percentile or lower were at once considered prospective candidates for the ungraded room.

Recently the National Intelligence Test, Scale A, Form 2, has been given to all pupils in the high-sixth grade preparatory to classification in the entering grade, 7B, of the intermediate schools. The pupils attaining the higher scores will be permitted a certain freedom of election denied the other pupils.

In addition to the National Intelligence Tests, the Whipple Group Tests for Grammar Grades have proved useful for selecting gifted pupils from the fourth grade and the fifth grade as candidates for the speed classes (these tests were especially designed for the selection of gifted pupils).<sup>6</sup>

Since the need of early classification soon becomes apparent, once any systematic classification is attempted, we have been experimenting with group intelligence tests for primary and kindergarten children. An elaborate comparative study of the merits of the Dearborn, the Haggerty Delta 1, the Kingsbury, the Otis Primary, and the Detroit First-Grade Tests was conducted at Jackson in the spring of 1921 by Miss Margaret V. Cobb, then Secretary of the Bureau of Mental Tests and Measurements of the University of Michigan.<sup>7</sup>

## 2. Individual Intelligence Testing

From the outset the Department of Measurements has continued the work of Binet testing that had been started prior to the creation of the Department. As already explained, the Binet test is used to confirm the assignments of all ungraded pupils, and of

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<sup>6</sup> A special report upon the validity of these tests for this purpose will appear in an early number of the *Journal of Educational Research*.

<sup>7</sup> The results of this study are to appear in a doctorate thesis by Miss Cobb.

all or nearly all the doubtful assignments of pupils destined for the opportunity, the auxiliary, and the speed classes. A considerable portion of the Director's time is thus engaged in this work of individual examining.

*Admission to the First Grade.* In addition to this work of checking the results of the group testing, there has been developed at Jackson a plan for using the Stanford Revision on a much more elaborate scale for controlling the admission of pupils from the kindergarten to the low-first grade. In November and December, 1920, all kindergarten teachers in the city were given a fairly rigorous course of instruction in the use of the Stanford Revision. Before the opening of the second semester (spring of 1921), these kindergarten teachers had given individual examinations to 362 children and the Director had tested 58 others, so that we knew the mental age and the intelligence quotient of 420 prospective candidates for admission to the 1B grade.

Under the system prevailing prior to this experiment, any child who would be six years old chronologically before the end of May (that is, 5:8 at the opening of the second semester) might be admitted to the 1B grade. There is fairly conclusive evidence that children whose mental age is under six years are not likely to do satisfactory work in the first grade, but it was deemed expedient, under the conditions prevailing at Jackson, to set the standard for that particular semester at 5:8 mental age. In addition, it was provided that all children who at the beginning of the semester were 6½ years old *chronologically* might enter the first grade, regardless of their mental age. Of the 420 kindergarten children examined, 100 were held in the kindergarten on the basis of their test scores. Of this 100, 68 were more than 5:8 years chronologically and would, accordingly, have been admitted to the first grade under the old system. On the other hand, there were admitted to the first grade 50 children who were less than 5:8 years chronologically, and who would have been held in the kindergarten under the old system, but who tested 5:8 or better in mental



TABLE II.—RELATION OF MENTAL AGE TO SUCCESS IN THE LOW-FIRST GRADE  
AT JACKSON, MICHIGAN

(Spring Term, 1921, 277 entrants, excluding repeaters, foreigners,  
and transients)

Mental Age	6 or over		5:8 to 6:0		Below 5:8	
Outcome	Cases	Percent	Cases	Percent	Cases	Percent
Promoted . . . . .	156	81.2	46	59.0	0	0
Conditioned . . . .	12	6.2	4	5.1	0	0
Failed . . . . .	24*	12.5	28	35.9	7	100.
Total . . . . .	192	99.9	78	100.0	7	100.0

\*Of these 24, 10 were absent one month or more in all.

age (the mental ages ranged from 5:8 to 7:2, the I.Q.'s from 104 to 133.<sup>8</sup>

The results of this experiment in admission to the first grade are summarized in Table II, where it is evident, as others have already shown, that there exists a positive correspondence between mental age and success in the primary work. Eighty-one percent of those who had attained a mental age of six or more at entrance were promoted at the end of the semester, whereas only fifty-nine percent of those who had attained a mental age of from 5:8 to 6:0 were promoted, while all seven of the pupils whose mental age was less than 5:8 at entrance failed in their primary work. In the future it will be our policy to limit entrance to the first grade, in so far as feasible, to pupils who have attained a mental age of 6. In the second semester, however, on account of the smaller number of applicants and the desirability of keeping a reasonable balance between the number entering in the fall and the number entering in the spring, the mental age standard will of necessity be somewhat lower than 6 years.

<sup>8</sup>The youngest child admitted in this group was just five years old chronologically and just 5:8 mentally. That he was ready for first-grade work seems evident from the testimony of his teacher who reported later that he was "doing first-class work" and "better than some of the older ones."

In general, it may be said, the reaction of the first-grade teachers toward this method of admission has been most favorable, though a few of them are still reluctant to accept children less than 5:8 chronologically. The teacher was perhaps not speaking entirely in jest when she said that in addition to the intelligence test, the Department should "give them a performance test to see whether they can put on their rubbers and button their coats!"



In conclusion it may be said that the use of intelligence tests in the classification of pupils in this school system has received the hearty support of the teachers, that the pupils transferred to the special classes are happier and more successful in their work, and that the parents, once the purpose of the special classes has been explained and the children have had time to adjust themselves to the new conditions, are appreciative of the special provision that has been made for their children.

## CHAPTER IV

### MEASUREMENT OF THE ABILITIES AND ACHIEVEMENTS OF CHILDREN IN THE LOWER PRIMARY GRADES

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Once started, measurement in the lower-primary grades has advanced with considerable rapidity. It was remarkably late, however, in beginning. For this there was a variety of reasons. Prominent among them is the lack of agreement among educators concerning the earliest years of school life. Not only is there difference of opinion as to when a child should enter school, there is also still greater uncertainty and confusion of ideas as to the ideal course he should have after entrance.

In the face of such a lack of unanimity as to the specific objectives of the first school years, those equipped to measure mental products have avoided the labor of devising measuring rods for what might prove to be mere passing fancies or outworn fads of teachers of those years, rather than the permanent educational desiderata for children from four to eight. This, we admit, is an explanation rather than a good reason for the late beginning made, since nothing would contribute more to the definition of the objectives of lower-primary education than measurement intelligently applied. The clarification of the aims of high-school mathematics, consequent on measurement would suggest this and justify us in anticipating similar results.

A second cause for the present situation is the fact that those equipped with the training necessary for the construction of measuring instruments for mental abilities have generally had little experience with *young* children and naturally devoted their attention to the higher grades, and a third obvious reason for the paucity of work done was the intrinsic difficulty in devising suitable

tests for the youngest pupils. A new technique for group measurement is necessary in their case and the relative unfamiliarity of those trained in mental measurement with five and six-year-olds engenders doubt of the success that would attend attempts to measure their abilities or achievements.

The practicability of the application of group intelligence tests to men of low mentality and to illiterates in the U. S. Army, naturally hastened the construction of tests for pupils of six and seven. Already there are twelve group tests of general ability available for those years, and of these, norms for children of five have been established for one test, norms for children of six for six tests, and norms for children of seven for seven tests. Of group tests of achievement eleven tests are on the market, and three of these are standardized for the first grade and eight for the second.

Many of these measuring instruments are admittedly still in experimental form. Nevertheless even to-day, we have some proof of the predictive power of at least seven of them. They show, too, interesting improvements in technique of administration. Though much remains to be done, much has already been accomplished.

#### CONTENT, FORM, AND ADMINISTRATION OF TESTS

In content the tests are pictorial. This, in itself, is a decided limitation. Individual examinations, such as the Binet-Simon Intelligence Scale in any of its revised forms, are undoubtedly more representative of a wide variety of abilities, notably linguistic and motor capacities. It has to be admitted, moreover, that linguistic abilities are paramount in importance for success with the customary elementary school curriculum. The ability to read is unquestionably the fundamental requirement for elementary school work, since mastery of many other subjects depends upon it. Those tests which probe this important capacity are therefore of exceptional significance. Pictorial tests, as devised for little children, require comprehension of oral language, but they demand no ability to manipulate language. Indeed, it may be said with considerable justification that pictorial tests for children in the lower-primary grades weight far too heavily the mere comprehension and following of oral directions. There are differences of opinion as to the nature of

general intelligence, but whatever its constituent elements may be, it is certain that it is not such that it can be adequately gauged by just one type of mental performance. Success with each and every item in intelligence tests depends upon the ability of the individual child to take a group direction. This latter ability is largely affected by practice and in her work one teacher may seek to develop it much more than another. It follows that some process of equalizing opportunity in this respect is essential. Two methods are possible; the provision of fore-exercises, which might take the customary form used in testing older persons, or the application of a similar examination on a previous day. There is much to be said in favor of the latter method. Some, who have had experience in applying tests to children from six to eight, are of the opinion that in their case the adjustment to the test situation as such, can effect a greater improvement in scores than with children in higher grades. There is likewise good reason for preliminary training in the specific acts involved in the responses made, but extrinsic to the particular abilities which are being probed. Such training could include the habituation of such responses as "Pencils up," "Pencils down," "Turn the page," in which there are great individual differences in the rate of work which might conceivably influence the scores and make impossible useful comparison with standards.

The reduction of the number of such specific responses is obviously desirable and the devising of scales which require but a single response, and that having only one possible interpretation, as in the Pressey Tests, is an important contribution. It represents a tremendous saving of the teacher's time in learning to give and score tests, and there can be no doubt whatever that it makes it much easier for the child of the mental age of five or six to sustain his attention. Where the tasks involved in the various tests of any examination require different kinds of reactions, confusion is apt to arise.

Another requisite on the content side of the tests needs to be mentioned. It is essential that concepts incidental to the abilities being measured, yet necessary for successful responses, should be verified as already established. For example, the making of digits

or letters of the alphabet or the comprehension of the meaning of zero are required by certain tests for children at the end of the first grade. It is necessary to make sure that mastery of these has been gained, otherwise we are not measuring the abilities intended to be measured, but something else.

Indeed, it has to be broadly affirmed that a fundamental desideratum of such pictorial tests for little children is that they must be adapted to their natural interests and experience-level. Certain pictorial tests can be extremely abstract in character and uninteresting to six-year-olds, and while it is an unattainable ideal perhaps, to expect any examination to demand no experience that any one child has not had, still existing tests show some noteworthy illustrations at variance with this ideal.

The very form of the tests demands the most meticulous care in the application of the facts and laws of mental development. The crucial problem after all is control of attention. If attention is not secured, intelligence cannot possibly be tapped. Sometimes the content or the method is such that tests fail to arouse the attention and interest of children. Invariably in testing we are careful to prevent the interference of such instincts as hunger and thirst. We give the tests at a time when these are unlikely to intrude and vitiate our results. It is equally essential that we should so control the stimulus presented to the child as to obviate other interfering tendencies. Thus, much experimentation is desirable on the ideal form of test. Should, for instance, the pamphlet-form be used at all, or is it almost impossible to control curiosity sufficiently to prevent children of six, in spite of directions to the contrary, from turning pages at inopportune moments? Again, what is the desirable spacing of pictures? Are not some of the existing tests too crowded, and consequently do we not have a dispersion of the child's attention rather than concentration on the task in hand? To take one illustration from one of the best existing tests, in the Kingsbury Group Intelligence Scale for the Primary Grades, is it not bad procedure, betraying ignorance of children of six, to have a two column arrangement in which, after completing the first column, the child is expected to begin at the top of the second and work down it? Is there not shown an almost uncon-



trollable tendency of six-year-olds to answer the items out of order and even to such a degree of distraction as to make them fail to grasp the group directions and merely respond according to their own undirected pre-dispositions to act towards such material? There is no room for question that too large an amount of material presented to the child has a bewildering and confusing effect, and the determination of the optimal number of different tasks we can present to the child of five or six for successive treatment is desirable. Existing tests vary greatly in merit as regards spacing of pictures, size of pictures, number presented, and clarity of printing. Unless these are controlled, we are in no better case than if we neglected to obviate noises, interruptions, or contrasting stimuli of any kind.

Another drawback attending the testing of young children which is usually absent at higher ages, is the untrained instinct of communication. This tendency is natural, and schools are more and more endeavoring to utilize it wisely, building upon it the mastery of the vernacular, the development of skill in drawing, and so forth. It is at this age almost impossible for some children to work independently. Contrary to the belief that the tendency to work together becomes stronger at adolescence, it would seem as if many children of this age habitually respond by seeing what others do, and find greater satisfaction in responding after seeing what another's response is. The obvious method of eliminating this is to seat children in such a way as to make communication impossible. None of the tests sufficiently emphasizes the care the examiner must exercise in seating children. Older children make known the fact that they cannot hear well or find the examiner's voice difficult to understand. The examiner of little children has to arrange the situation in advance of the test so as to find out for himself which children are experiencing difficulty in this way, and has to exercise judgment in discovering those children who are habitually dependent on others in their work.

#### EVALUATION OF TESTS

A satisfactory beginning has been made in the evaluation of tests. Such a study as that of Holley is a more valuable contribu-

tion at the moment than the construction of a new test. At the present stage we require to find out much more concerning their comparative predictive power, and their relative convenience and reliability. Holley applied only one test, the Pressey Primer Scale, to children in the primary grades. The comparison with standards which his results afford in the case of that test is very useful. Further studies of this description are about to be published and will do much to advance knowledge in this field. We urgently need such systematic application and evaluation of existing group intelligence scales for the youngest children.

The problem of evaluation in their case is not so simple as at higher levels. Teachers' estimates and school marks are even more unreliable at these ages than later. Even if rating scales for these years are speedily devised, which may refine the judgments of teachers to an appreciable extent, this will still hold good. Much of the failure of mental tests at all levels can be traced to inadequate theory, and fortunately attention is now being concentrated on criteria for their validity. Increase in achievement from one age to the next and variations in achievement for children of the same age are now being supplemented as essential criteria by the power of such tests to discriminate adequately between two groups of children, one of notably superior capacity, the other of notably inferior mentality. The degree of correspondence found also between the results of group tests and individual examination of established trustworthiness, such as the Stanford Revision of the Binet-Simon Scale and the success of children in after years, are likewise valuable checks on the effectiveness of particular tests.

Achievement tests offer special problems from the standpoint of evaluation. In addition to the fact that we must have some guarantee that they do measure abilities that are worth fostering in school, it is essential that these tests should be in harmony with sound educational theory and practice. There is some likelihood of tests being published that do not meet these requirements. Opinion is greatly divided as to the content of the course for the first school year and perhaps it is an excellent thing that at this time so much experimentation is being carried on with an abundant variety of materials involving a correspondingly wide range of mental capacities.

Is there less room for difference of opinion on the second requirement? Such a test as Pressey's First Grade Vocabulary test has been criticized from this point of view. The effect of such an instrument might be to encourage the teaching of reading by developing word-getting rather than thought-getting. It may be answered that the occasional application of the test would work little harm and would be a useful index to the proficiency attained in comprehension. It is felt, notwithstanding, by many to be dangerous to place it in the hands of the teacher, because of its probable misuse. The scale announced by the Department of Research at Detroit certainly encourages a more valuable sort of reading ability.

### USES OF TESTS

Certain valuable studies have appeared in the course of the past year, which show the uses to which tests are now being put in the earliest school years. Notably Dickson has shown that if a child has a mental age of six he can do the work of the first grade, whereas if his mental age is less than that, he is found unable to cope with first-grade work. Evidence that the achievement of children in the primary grades is conditioned and limited by their mental maturity has likewise been presented by Arthur and by Haggerty.

Intelligence tests thus serve the important purpose of classifying children in accordance with capacity, which seems to be a necessary step even with children in the first school year. They prove equally useful as one factor in settling promotions. Buckingham has published facts that show that if a child has failed to attain the standard of attainment required for promotion, it is questionable whether the year's work should be repeated in all cases, and that promotion to a new teacher may give enough stimulus to make good the deficiency.

It is when coupled with tests of achievement that intelligence tests become most fruitful. Indeed, achievement of pupil or teacher can only be estimated fairly on the basis of such knowledge. The combination of intelligence and achievement tests also furthers diagnostic study and treatment of individual needs. Such investi-

gations as those of Anderson and Merton and of Zirbes indicate the large field which yet remains to be ploughed.

Tests of attainment may serve the additional purpose of measuring the efficiency of different methods of instruction and the relative merits of different courses of study. Theisen, for example, presents some evidence that children who have had kindergarten training show better results with reading in the first grade than do children who have not had that training. Such investigations enable us to evaluate more justly the kindergarten curriculum and methods and are fruitful of suggestions as to the kind of experience the child needs prior to learning to read.

In the future, investigations to determine a satisfactory course of study for the first school year will be made by their help; indeed, studies of this kind are now being made. For example, in primary education there is no greater need than an inventory of the specific habits and attitudes which we have a right to demand in normal children after a definite amount of time spent in school. The measurements of the important achievements represented by habit-forming will do much to concentrate attention on a most important aspect of education and one which is not only essential to success in social life, but also to success with later intellectual work. There is reason to believe that the fundamental habits of successful intellectual activity can be established much earlier than it has been customary to suppose. The fastening of the attention of the teacher on these rather than on subject matter, will bring excellent results and recognition of the gifts of those teachers who are exceptionally successful in this work is only their due. This may awaken, even in those neglectful of this branch of education, realization of the need for securing accomplishment in this respect, also. No such objectives have been specified in the past, and the teachers of five and six-year-olds would profit greatly if they were at hand.

This is but one phase of curriculum analysis of which no stage of education stands in greater need than the first few school years. At the moment the diversity of practice is great, and the only guide we have in the matter is common sense. There lies ahead of us the detailed study of achievements in order that standards may be laid down. Curriculum-making will not be the work of the psychologist



alone, but the psychologists's contribution of facts will give a basis for wise prescription in the matter. Only by determining accurately the actual accomplishments of children and their rate of progress can we arrive at curricula that can lay claim to being scientific.

Studies such as those of Packer on the vocabularies of first-grade readers and of Starch on the content of readers represent another side of quantitative investigation which will lead to scientific curricula for the primary grades.

Attention must also be turned to the making of rating scales for young children for those qualities of character for which no objective measuring rods exist and for which it is most unlikely that they will be forthcoming. These should be usable instruments that will refine and correct the teachers' judgments about pupils. They should cover those elements in character or personality which are essentially dynamic. Such scales are valuable in diagnosis of the causes of retardation and together with intelligence tests help greatly in locating sources of failure in school work.

The extent of retardation in the United States amounts roughly to over thirty percent and of this a substantial part can be traced back to the first grade. The discovery of the causes for this retardation should be the central business of departments of educational research. We may confidently expect that tests and scales for the earliest school years will loom larger in educational literature in coming years.

#### REFERENCES

- Anderson and Merton. "Remedial work in reading." *Elementary School Journal*. May and June, 1920.
- Arthur, Grace. "An application of intelligence tests to the problem of school retardation." *School and Society*, 10: 614-620.
- Buckingham, B. R. "An experiment in promotion." *Journal of Educational Research*. 3: 1920. 326-335.
- Dickson, V. E. "What first-grade children can do in school as related to what is shown by mental tests." *Journal of Educational Research*. 2: 1919. 475-480.
- Holley, C. E. "Mental tests for school use." *University of Illinois Bulletin*. Vol. XVII. No. 28.
- Packer, J. L. "The vocabularies of ten first readers." *Twentieth Yearbook of this Society*. 1921. Part I, Chapter 9.
- Starch, Daniel. "The contents of readers." *Twentieth Yearbook of this Society*. 1921. Part I, Chapter 10.
- Theisen, W. W. "Factors affecting results in primary reading." *Twentieth Yearbook of this Society*. 1921, Part II, Chapter 1.
- Zirbes, Laura. "Diagnostic measurement as a basis for procedure." *Elementary School Journal*. 18: March, 1918.





## CHAPTER V

### THE SIGNIFICANCE OF INTELLIGENCE TESTING IN THE ELEMENTARY SCHOOL

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#### THE BEGINNINGS OF THE MENTAL TEST

The first mental test of any practical value for the measurement of intelligence was the Binet-Simon Scale. This scale was originally constructed to aid in the detection of feeble-minded children, and therefore, for a long time in the use of mental tests the emphasis was thrown upon the discovery of subnormal intelligence. It is from this period that we have inherited the expression "to submit a child to a mental examination," carrying with it a doubt as to the integrity of the child's intelligence. The need of society to protect itself against the feeble-minded was the reason for the development of the Binet-Simon Scale with its emphasis upon subnormal intelligence. If, for any reason, society had been more interested in the discovery of superior intelligence, the early history of mental testing would have been very different and it would have been regarded as more of a privilege than an indignity to be the subject of a mental examination. We have now, however, largely overcome the hostility and suspicion attaching to mental tests, and they are being used about as much for the discovery of superior intelligence as for the discovery of subnormal intelligence.

In addition to the individual examination, we now have the group examination, by means of which a large number of children may be tested at the same time. We shall, therefore, consider separately these two methods of examination and their value for the elementary school.

#### INDIVIDUAL TESTS

There are now many scales suitable for the individual examination of children. The ones most used at the present time are

the Stanford Revision of the Binet-Simon Scale,<sup>1</sup> the Goddard Revision of the Binet-Simon Scale, the Yerkes-Bridges Point Scale,<sup>2</sup> and the Pintner-Paterson Performance Scale.<sup>3</sup> The first three are revisions and extensions of the original Binet-Simon Scale, and of the three, the Stanford Revision by Terman is the best standardized and the one most extensively used. The Performance Scale makes use of none of the original Binet tests, but is composed entirely of form-boards and other performance tests, which do not require language either on the part of the examiner or the subject. It is therefore, extremely useful for testing foreign children; for children of foreign parentage where English is not spoken at home; for children suffering from speech defects of various kinds; for deaf children, and also as a supplement to any of the other scales which are so largely dependent upon language ability.

### 1. Service of Individual Tests in Locating the Backward

The main service which these individual scales render to the school at the present time is in the testing of children who are candidates for special classes of backward or bright children. Although group tests are being used to some extent for this purpose, it is generally felt that the more intensive individual examination is preferable. This is particularly true in the case of classes for the backward or feeble-minded, since unfortunately, a certain stigma sometimes attaches to relegation to such classes.

The segregation of subnormal children in special classes is now a firmly established policy in most progressive school systems. The selection of such children is generally, and should always be, based ultimately upon a mental examination. Because it is often impossible and unnecessary to give every child an individual mental examination, the usual policy is to ask the teacher to designate those children who are so poor in their school work as to arouse a suspicion of mental defect. These cases are then tested by the

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<sup>1</sup> Terman, L. M. *The Measurement of Intelligence*. Houghton Mifflin, 1916.

<sup>2</sup> Yerkes, R. M., Bridges, J. W., and Hardwick, R. S. *A Point Scale for Measuring Mental Ability*. Warwick and York, 1915.

<sup>3</sup> Pintner, B., and Paterson, D. G. *A Scale of Performance Tests*. Appleton, 1917.

school psychologist or mental tester, and if they are found to be mentally inferior, they are then assigned to the special class. Children with an intelligence quotient below 80 should always, if possible, be given the benefit of instruction in special classes, and many children with I. Q.'s between 80 and 90 may profit by such special class work. There can, however, be no hard and fast line for the assignment of such children. The policy in each school system must depend upon the number and location of the available special rooms. Where the number of rooms is very small, it may only be possible to take care of the most retarded children. The special class may thus become filled with absolutely feeble-minded children, whose intelligence quotients are below 70. This is, of course, better than no segregation at all, but it does not take care of the borderline and backward cases with intelligence quotients ranging from 70 to 90, and a great many of these can profit by special class work. In some school systems a special building is assigned for the work with backward children, and this has the advantage of allowing a closer grading of the children, so that those of similar mental age may be grouped together. This grouping of children of like mental ability facilitates the work of the teacher immensely and is much more advantageous for the child.

It is needless here to attempt any survey of the progress of the special class movement in this country. Although in many respects much remains to be done, nevertheless, the growth of the work has been rapid and phenomenal, and it might not be an exaggeration to say that at the present time backward and feeble-minded children are receiving more attention and better instruction than any other group of children in our public schools. Most of this growth has been the result of the introduction of the mental examination, because the use of mental tests has clearly revealed the extent of the problem and has allowed us to make the selection of children accurately and quickly.

## 2. Service of Individual Tests in Locating the Superior

Only recently have we become definitely conscious of the presence in our schools of another group of children whose need for special instruction is as great as, if not greater than, that of the

backward and feeble-minded. The bright or superior child has been almost entirely neglected. He has been discovered by means of the mental test. After the first interest in the subnormal had subsided, it was inevitable that more and more attention should be paid to those children who were doing exceptionally well in the mental tests. The discovery of these cases was greatly facilitated by the appearance of the Stanford Revision of the Binet Scale, because this scale gave a much better opportunity than the original Binet Scale for a child to make a high mental age. Terman was one of the first to direct attention to the superior child and he has contributed a great deal to our knowledge of the subject.

Miss Race<sup>4</sup> at Louisville, Kentucky, seems to have been about the first to organize a special class for very bright children on the basis of mental tests. Whipple's<sup>5</sup> experiment in Illinois showed conclusively the necessity for the use of mental tests in the selection of children for such classes. It is well to emphasize this at the present time, because there is a tendency to believe that teachers and others are fairly well able to pick out the brightest children. This, however, is far from the truth. Most teachers are better able to select the mentally inferior than the mentally superior. If tests are useful for the selection of the dull and backward children, they are absolutely necessary for the selection of the mentally superior. A child who is doing the best school work in a class is not *ipso facto* a superior child. Superior intelligence and good school work do not always go together. There are many children doing only average or below average work, who are of superior intelligence. These children have simply formed the habit of doing passable school work, and they require a greater stimulus than the ordinary school provides to arouse them out of their apathy. Again many bright children are so bored by the slow pace of the average class that they lose all interest in school work and devote themselves enthusiastically to extra-school activities which give full play to their intelligence. The need of mental tests for a proper selection of such children is, therefore, obvious.

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<sup>4</sup> Race, H. V. "A study of a class of children of superior intelligence." *J. of Ed. Psych.* 9: Feb. 1918, pp. 91-98.

<sup>5</sup> Whipple, G. M. *Classes for Gifted Children*. Public School Pub. Co., Bloomington, Ill., 1919.



Coy, at Columbus, Ohio, has conducted a very thorough and lengthy experiment with a special class of bright children. The members of this class were carefully selected on the basis of mental tests, and it was to this careful selection of cases that the success of the experiment was partly due. It was again demonstrated with reference to the selection of cases that dependence upon the choice of the teachers would have resulted in the omission of several of the very brightest and conversely in the inclusion of some of only average capacity. The homogeneity of intelligence in the group selected by the tests allowed the children in the class to advance together without the usual interference produced by the presence of slower and duller pupils. No attempt was made to set any definite pace in order to accomplish any given amount of the ordinary school curriculum. The children were allowed to set the pace and to cover as much as they seemed capable of doing, and at the same time, they were allowed to branch out into other subjects not generally included in the curriculum. Both enrichment of curriculum and acceleration took place. The question is often asked as to whether the curriculum ought to be broadened or whether it should be covered more rapidly. The question should not be stated in that way, as if these two things were mutually exclusive. In all probability, judging from Coy's work at Columbus, both enrichment and acceleration should occur in any carefully selected class of superior children. The class in question actually covered three years' work of the ordinary curriculum in two, and in addition received instruction in several subjects not found in that curriculum. When the class was abandoned, the children were ready for the eighth grade, and reports of their work in that grade show that they are doing much better than average work.

The experiment was eminently successful and revealed the great latent possibilities of the superior child. It aroused in them a desire to master things more difficult than they had ever met with before, and it thus gave them the opportunity of better gauging their own powers. Without some such stimulus as the special class provides, the great danger is that the superior child may go through life not dreaming of his potential ability, because school and society puts its approbation upon average work, and he may

have formed a habit in school of being content with this type of work.

This brief account of the selection of superior children must suffice here. Without doubt, the near future will see an increased interest in this type of special education. The number and variety of classes for bright children will unquestionably increase, when once we realize the big dividends they will pay. So far the interesting thing for the psychologist and the educator is to note the insistence of the pioneers in this work upon the necessity for mental examinations in the selection of the children. The Stanford-Binet has been most widely used. Group tests, as we shall see, are becoming increasingly valuable and accurate for classification purposes, but at the present time, wherever possible, a thorough individual examination is strongly to be recommended.

### GROUP TESTS

So far we have dealt with the use of individual scales and we have seen that the main use of such scales has been the selection of special cases, whether feeble-minded or superior. The individual examination is of necessity limited in scope in school testing, because of the amount of time necessary for the giving of a single test. There has, therefore, been developed within recent years the more economical group test, and its value to the school has exceeded the expectations of its most enthusiastic supporters. We shall discuss in this part of our article the chief group mental tests useful for the elementary schools and also the most important purposes for which they are being used. Tests for the first grades are described elsewhere in this *Yearbook*.

#### 1. Some Group Tests Suitable for the Elementary School

*The National Intelligence Tests.* These tests were prepared under the auspices of the National Research Council by Haggerty, Terman, Thorndike, Whipple, and Yerkes. Two booklets are recommended for each examination. Each booklet contains five exercises.

Scale A contains (1) arithmetical problems, (2) sentence completion, (3) checking attributes possessed by a given word, (4)

synonym-antonym, (5) copying numbers corresponding to given symbols from a key.

Scale B contains (1) computation, (2) general information, (3) logical judgment, (4) analogies, (5) discrimination of similarity and difference as applied to numbers and forms.

The novel feature of this test is the fore-exercise that precedes each exercise proper. This fore-exercise is a sample of the kind of thing which is to be done in the test proper which follows immediately afterward, and thus gives the pupil an opportunity to adjust himself to the situation presented by the test. It is a preliminary practice period for each test, and the pupil's work during this period is not scored. In most cases the fore-exercise is limited to 30 seconds. Two forms of these tests have already been published, and three additional forms are promised. Each of these five forms will be equivalent to any other. Therefore, the tests may be used repeatedly without fear of coaching or of the pupils becoming too familiar with the specific questions of any one form. The tests have been given to thousands of pupils, so that good norms are available.<sup>6</sup>

*The Haggerty Delta 2.* This test is designed for grades three to nine. It is an adaptation of the Army Intelligence Examinations and was devised for, and used in, the Virginia School Survey. There are six exercises: (1) discrimination between true and false statements, (2) arithmetic, (3) picture completion, (4) discrimination between words, whether same or opposite, (5) common-sense judgments, (6) general information. This test is better adapted for elementary school purposes than the original Army Alpha. The norms consist of average scores for each age for ages eight to fifteen, and for each grade from three to nine. These average scores are based upon twenty thousand cases.

*The Pressey Cross-Out Tests.* These tests have been found useful in grades three to the high school. They differ from the tests previously described in that all of the four exercises call for the same type of response, namely, crossing out something; thus, Test 1, Cross out the superfluous word in disarranged sentences; Test 2,

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<sup>6</sup> For a more detailed description of these tests, see Whipple, G. M. "The National Intelligence Tests." *Jour. of Educ. Research*, 4: June, 1921, pp. 16-31.

Cross out the superfluous word in lists of words related to each other; Test 3, Cross out the superfluous number in a number series; Test 4, Cross out the worst thing in several lists of qualities, actions, and the like. This last test is a sort of moral judgment test and differs radically from the type of test usually included in intelligence examinations. It seems to assume that a high degree of conformity with the conventional standards in moral judgment goes along with high general intelligence. Until we know more about such relationships, the test seems a little out of place in a general intelligence examination, but it is interesting in that it fore-shadows morality and character tests. There are excellent norms for these tests for ages ten to seventeen and for grades three to twelve.

*The Otis Intelligence Scale, Advanced.* This is suitable for grades five to twelve. It consists of ten exercises: (1) following directions, (2) opposites, (3) disarranged sentences, (4) matching proverbs, (5) arithmetic, (6) geometric figures, (7) analogies, (8) similarities, (9) narrative completion, (10) memory. This was one of the first tests to be published and it has been extensively used. The group tests used in the army were largely based upon the work of Otis. There are norms for ages eight to eighteen, inclusive.

There are several other scales which are useful in the upper grades of the elementary school and in the high school as well, for example: Terman's Group Test (grades 7 to 12); Dearborn's Scale II (grades 4 to 11); Whipple's Group Test (grades 4 to 8); Myer's Mental Measure (all grades); Pintner's Survey Tests (grades 3 to 10); Trabue's Mentimeters (all grades); and so forth.

## 2. The Use of Group Tests

The tests that we have mentioned have been more or less extensively used. Some are better constructed and better standardized than others. All of them will give a more or less accurate measure of a pupil's intelligence. It is impossible to answer the question so frequently asked: which is the best? The best for what purpose? Some of them are good for certain grades and have little discriminating power above and below specific limits. If extensive mental surveys of several schools or school systems are



to be made, several of the shorter tests will be found sufficiently accurate. On the other hand, where much depends upon the rating of the individual child, it is better to give the longer and more thorough tests, and still better to give more than one group test.

The one thing that any of these group tests will do is to rank any group of children in order of ability from the best to the poorest. This can be done regardless of whether there are good norms for the test or not, and this is after all the fundamental value of a mental test. The comparison of one pupil with another in reference to mental ability is the important thing, because the chief practical value is the grouping of children into more or less homogeneous groups with reference to their mental ability. The more alike in general ability the pupils in any one class are, the easier and more effective will be the teaching of that group. Now, one of the most striking results of the application of group tests to school children has been to show how very heterogeneous is the mentality of the children in an ordinary class. We find very superior, normal, backward, and dull children all grouped together and all expected to learn the same things and to learn them at the same rate. In the same class will be found children of quite varied mental ages.

One study<sup>7</sup> reports a range in mental age from four to nine in Grade I; from six to nine in Grade II; from six to twelve in Grade III; from six to fifteen in Grade IV; and similarly for the other grades. Terman<sup>8</sup> reports a range in mental age from three to ten in Grade I; from seven to fifteen in Grade V; and from twelve to nineteen in Grade IX. In a survey<sup>9</sup> of 1043 eighth-grade pupils in 29 schools in Oakland by means of the Otis Tests, it was found that the scores for the individual pupils ranged from 14 to 152 points, and that the medians for the 29 different schools ranged from a score of 48 to 109. As the examiners point out, the mental ability of the best eighth grades was as good as that of an average ninth grade, and the mental ability of the lowest eighth grades

<sup>7</sup> Pintner, R., and Noble, H. "The classification of school children according to mental age." *Jour. of Educ. Research.* 2: Nov. 1920, pp. 713-728.

<sup>8</sup> Terman, L. M. "The use of intelligence tests in the grading of school children." *Jour. of Educ. Research.* 1: Jan. 1920, pp. 20-32.

<sup>9</sup> Dickson, V. E., and Norton, J. K. "The Otis Group Intelligence Scale applied to the elementary school graduating classes of Oakland, California." *Jour. of Educ. Research.* 3: Feb. 1921, pp. 106-115.



equalled only that of an average sixth grade. Colvin<sup>10</sup> reports pupils in Grade VII ranging in score from 27 to 143 points on the Otis Scale; in Grade VIII ranging from 47 to 171 points.

Such results are typical of what has been found in every school survey by means of mental tests. We are slowly coming to a realization of the tremendous differences in mentality that exist in children of the same chronological age. To some extent this is already beginning to affect school procedure in the grouping of children, although for the most part we are still under the incubus of chronological age. In course of time, however, when the significance of the results of mental tests becomes more widespread, we shall gradually pay less and less attention to chronological age and more and more to mental age.

#### THE COMBINATION OF MENTAL AND EDUCATIONAL TESTS

It is obvious that these radical differences in mental ability among children of the same class, among children in different classes, among different schools and school systems, affect very materially the amount of educational attainment achieved by various groups. A child of inferior mentality cannot be expected to accomplish educationally as much as a child of superior mentality. In the same way, a class or school with a low average mental ability should not be expected to cover the same curriculum as quickly as a class or school with a higher mental ability. The relationship between mental ability and school progress in the individual child has for a long time been recognized, and opportunities for slower or faster progress have been allowed for by the formation of special classes, as we have already noted. The fact that there are appreciable differences in mental ability among ordinary classes and schools is only now being slowly recognized. Up to the present time it has been tacitly assumed that the average ability of any class or school was equal to that of any other class or school and that, therefore, it was reasonable to expect the same amount of educational progress in each case. All grades in a school system are expected to cover the same amount of the course of study laid

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<sup>10</sup>Colvin, S. S. "Some recent results obtained from the Otis Group Intelligence Scale." *Jour. of Educo. Research.* 3: Jan. 1921, pp. 1-12.

down for the system, making no allowance for the different mental abilities of the classes or schools. If one school falls below another in educational achievement, it is generally assumed to be the fault of the teachers and principal of the school. The fact that there are great differences in the raw material with which teachers have to work has seldom been fully recognized. The raw material with which the teacher has to work is the native ability of the child, and this determines the degree of modifiability or the rate of learning. Good raw material is easily modifiable and the rate of learning is rapid. Poor raw material is hard to modify and the rate of learning is slow. A teacher should not be blamed for the poor raw material with which she may have to deal. But, we should see to it also that she makes efficient use of the good raw material.

A serious defect of most school surveys up to the present time is the lack of a measure of the intelligence of the pupil material. The best of these surveys have made excellent use of objective educational tests and scales, and the results have been of great value. Many of the conclusions drawn from these results are, however, open to criticism. If a school or class is below the average in any given subject, the suggestion has been that the administration of the school, the attendance of the pupils, the physical equipment of the school, and particularly the methods and teaching ability of the staff are at fault, and it has been upon the teachers that for the most part the blame has rested. Now, poor teaching will undoubtedly lead to slow educational progress, but from the results of combined educational-mental tests that we are now getting, we have reason to believe that poor teaching is more likely to be found in schools possessing good mental material than those possessing poor mental material, because in the latter there is constant pressure being brought to bear upon the teacher to cover the regular course of study made out for the school system as a whole. The basic differences in the mental ability of the pupils, which in all probability are the chief reason for the differences in educational attainment, are seldom mentioned or when mentioned, seem to be considered of secondary importance.

## SURVEY RESULTS

The Cleveland Survey<sup>11</sup> gives excellent tables and diagrams showing the differences that exist among schools in various educational subjects measured by standard tests. Thus, in one arithmetic test the median score in the eighth grade for 90 schools is 27.5, but the range of medians is from 21 to 41. The same wide range appears in the other grades. In reading, in the fourth grade the scores for 44 schools range from 34 to 63, with an average score of 47. The other school subjects measured show similar enormous variations from grade to grade.

In attempting to interpret these differences the survey report never emphasizes the differences in the mentality of the pupil material. In fact, this is scarcely ever mentioned. To be sure, the report says that "children in different schools differ from one another," but it does not go on to explain what kind of differences are meant, and one gets the impression, because of frequent mention, that differences in nationality and social condition are the differences considered important. Again, the report says that "it becomes necessary at times in reporting the results of the tests to criticize the schools which are below the average, or are irregular in their instruction," from which teachers and principals draw the natural conclusion that if their schools are below the average, they themselves are more or less to blame. In many cases the educational work in schools below average is as good as we have a right to expect in view of the ability of the pupil material. Again, the report continues: "Every adverse criticism based on comparison thus implies praise of the good school and the excellent work which furnished the basis of comparison." This, of course, implies that work above the average is due to the efficiency of the teachers and principals, whereas, as a matter of fact, we have reason to believe that it may be solely due to the mental make-up of the pupil material, and in many cases such educational work is not nearly as good as it ought to be in view of the excellent native ability possessed by the pupils. Praise or blame, therefore, cannot be apportioned on the basis of educational tests alone. To judge justly of the

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<sup>11</sup> Judd, C. H. *Measuring the Work of the Public Schools*. Survey Committee of the Cleveland Foundation, 1916.

work of a school, we must have a measure of the mental ability of the children.

We have taken the Cleveland Survey as a sample of the best type of recent school surveys, and we do not mean to suggest that the writer of the report was not aware of differences in mentality in different schools. In many other surveys the neglect of such differences is much more flagrant. In all surveys up to the present time, the great amount and the importance of such differences have not been fully realized.

### COMBINED MEASURES

Several workers have pointed out the necessity for an evaluation of educational attainment in terms of mental ability. The writer<sup>12</sup> suggested this in 1918 and in more detail in 1919.<sup>13</sup> In 1920 Franzen<sup>14</sup> proposed the A. Q. or Accomplishment Quotient. The A. Q. is the E. Q. (educational quotient) divided by the I. Q. (intelligence quotient). The I. Q. is a measure of the native ability of the child and shows his potential rate of progress. The E. Q. is a measure of the educational attainment of the child and shows his actual rate of progress. "The Accomplishment Quotient is the degree to which his actual progress has attained to his potential progress by the best possible measures of both." And further: "It is a mark which evaluates the accomplishment of the child in terms of his own ability. A brilliant child would no longer be praised for work which in terms of his own effort is 70 percent perfect, in terms of the group, 90 percent . . . A stupid child who does work which is marked 70 in terms of the class, but 90 in terms of his own, a limited ability, is no longer discouraged."

Two sets of tests have been recently published for obtaining a combined educational-mental measure, although, of course, an E. Q. and A. Q. as suggested by Franzen can be obtained wherever we have mental and educational tests standardized by ages. The

<sup>12</sup> Pintner, R. *The Mental Survey*. Appleton, New York City, 1918.

<sup>13</sup> Pintner, R. Paper read before the American Psychological Association, Dec. 1919. *Psychol. Bulletin*. 17: Feb. 1920, pp. 60-61.

<sup>14</sup> Franzen, R. "The accomplishment quotient." *Teachers College Record*. 21: 1920, pp. 432-442.



writer's<sup>15</sup> combined mental-educational tests have been specifically devised and standardized for general survey purposes to give a rough measure of the intelligence and the educational attainment of pupils in the elementary school from Grades III to VIII. The Illinois examination by Buckingham and Monroe<sup>16</sup> contains a mental test of seven exercises, and two educational tests, namely, reading and arithmetic, and is suitable for Grades III to VIII.

We have thus seen in a relatively short time the principle of evaluation of educational attainment in terms of mental ability very definitely stated, various means for such an interpretation suggested, and two combined sets of tests published. Let us now look at some of the more striking results that seem to be emerging.

The thing that has impressed the writer most in his own work is the seemingly greater inefficiency of the brighter children, when they are measured with reference to their potential ability. Thus, in tests of 4215 children, of the 900 children doing less than their mental capacity would seem to warrant, 47 percent are diagnosed as bright by means of the intelligence test and only 8 percent as backward. Again, of the 1064 children who seem to be doing more than is generally done by children of like mentality, only 11 percent are bright mentally, while 40 percent are mentally slow. The results obtained may be seen in the following table:

	Doing less than expectation	Working up to expectation	Doing more than usually accomplished
Bright . . . . .	47.4	24.4	10.8
Normal . . . . .	44.3	53.2	49.3
Backward . . . . .	8.3	22.3	39.8

It is evident, therefore, that the tendency of the school is to push ahead the mentally slow in order to make them keep pace with the average and at the same time to neglect the bright as soon as they have achieved average work.

<sup>15</sup> See Pintner, R. *Manual of Directions for Combined Mental-Educational Tests*. College Book Co., Columbus, O.; and also Pintner, R., and Marshall, H., "A combined mental-educational survey." *Jour. of Educ. Psych.* 12: Jan. 1921, pp. 32-43, and 12: Feb. 1921, pp. 82-91.

<sup>16</sup> Buckingham, B. R., and Monroe, W. S. "A testing program for elementary schools." *Jour. of Educ. Research.* 2: Sept. 1920, pp. 521-532.



What is true of the individual child seems also to be true of the school in general. We find many schools where the general ability of the pupil material is excellent, that are failing to live up to their possibilities in the way of larger educational returns; and, conversely, we find many schools of poor pupil material that are giving relatively good educational returns, even though the absolute accomplishment seems poor. We cannot, therefore, justly evaluate educational accomplishment without some measure of the ability of the pupil material. Although most of these results at present point to a tremendous wastage of good intelligence, we may be optimistic as to the future when we hope that this intelligence will be discovered early and be thoroughly utilized.

#### SUMMARY

We have attempted to show in general the place of mental testing in the school, both from the standpoint of the teacher and superintendent, as follows:

1. The use of individual tests as a means of careful diagnosis, where special educational treatment of specific pupils is concerned.
2. Individual tests useful for the selection of dull and bright children in the organization of special classes.
3. The use of the group test for the classification of children so as to group together children of like mentality.
4. The various kinds of group tests at present available for the elementary school.
5. The need of both educational and mental tests in the evaluation of the work of the teacher and the principal.
6. Various measures proposed for such evaluation.
7. Some consequences of the use of such combined mental educational measures.



## CHAPTER VI

### THE USE OF INTELLIGENCE TESTS IN JUNIOR HIGH SCHOOLS

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Only in so far as the junior high school differs from other segments of the educational establishment will the uses of intelligence tests differ in a junior high school from their uses in other schools. The most outstanding characteristic of the junior high school is undoubtedly its sensitiveness to individual differences in pupils. This responsiveness to differences in its pupils is largely the result of fundamental purposes, although partly an accident due to the newness of this type of school. Furthermore, unless attention to differences is fostered and held constantly in mind as a cardinal virtue, such a school will soon lose the majority of its distinctive features.

If one takes the five peculiar functions of the junior high school found by Koos<sup>1</sup> to be mentioned most frequently in school documents and in the statements of educational leaders about such schools, he may recognize each function as being to a large extent a result or an expression of the responsiveness of the junior high school to the differences existing in its individual pupils. These five functions are:

- I. Realizing a Democratic School System through
  - A. Retention of Pupils
  - B. Economy of Time
  - C. Recognition of Individual Differences
  - D. Exploration for Guidance
  - E. Vocational Education
- II. Recognizing the Nature of the Child
- III. Providing Conditions for Better Teaching
- IV. Securing Better Scholarship
- V. Improving the Disciplinary Situation and Socializing Opportunities

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<sup>1</sup>L. V. Koos, *The Junior High School* (New York: Harcourt, Brace and Howe, 1920), p. 18.

Pupils are to be retained in larger numbers by the junior high school, because it recognizes that they are not all interested in the same kind of work and therefore provides a greater variety of courses than the usual grammar school, with some opportunity for the individual pupil to choose what he will study. Time is to be economized in the junior high school by recognizing that some of the traditional subject matter is of little value to most of the pupils and by grouping pupils according to their abilities to make progress. Certain courses are to be given primarily as introductions to the essential facts and skills in different types of trades and occupations from which each pupil may later choose the one in which he may find his greatest interest and probable success. Better teaching, better scholarship, better discipline, and better social organization are to be secured through the grouping together for study and recitation of pupils who have approximately the same abilities, and through the recognition by the school and exercise by the pupils of different degrees of social, political, and administrative powers.

Obviously, the most important use of intelligence tests in the junior high school will be the discovery and measurement of differences in the intellectual abilities of the individual pupils. Although desirable traits tend to be found in the same individuals, the correlations between intelligence and such qualities as moral honesty, industry, social leadership, and political sagacity are not perfect. It will not be possible, therefore, to measure by means of intelligence tests all of the individual differences to which the junior high school must give recognition and make adjustments. In so far, however, as the type of intelligence measured by our tests is the type to which the school should be sensitive, intelligence tests are indispensable tools in the organization and administration of the modern junior high school.

If it were possible to measure with great accuracy every type of capacity and ability, no two pupils would be found to be alike. Each individual pupil probably has a different degree of native intellectual power, a different amount of social instinct, a different quantity of self-control, and a different avoirdupois weight from any other pupil in the same school, although our scales for measuring

these qualities are sometimes so crude that we can not distinguish the differences. As a matter of fact, although such differences do exist, they are frequently so small as to be of no vital importance so far as life or the school is concerned.

Considering the matter abstractly, a thoroughly democratic state should provide each child an equal opportunity to develop his individual capacities to their maximal effectiveness. To ignore the fact that children differ in their native endowments and in their social and vocational futures, and to force all pupils to take exactly the same educational course is not only extremely undemocratic, but is also practically impossible. However narrow and uniform the offerings of a school may be, its pupils do not obtain the same amounts of training from the same amounts of attendance. If individual differences in children were the only factors to be considered in the formulation of an educational program, individual instruction would be the universal practice, not only in regard to the rates of progress, but also in regard to the fields in which progress would be attempted.

From an economic and social point of view, however, it would be extremely wasteful of the energy of teachers and of the public resources to train each child separately. A public school must serve the state economically as well as serve the future citizens of the state individually. Certain differences in children's endowments and future histories are so small as to be relatively unimportant as far as their training in a given field is concerned. Furthermore, there are certain habits of thought, action, and feeling which must be more or less universal if the state is to maintain itself as a unit. For these and other reasons, pupils in the public schools are grouped in classes, rather than taught as though each individual were a distinct class in himself.

It was stated above that the junior high school is characterized by its unusual sensitiveness to individual differences. Being less closely bound by tradition than other schools, the degree to which the junior high school may adjust itself to differences in its pupils is controlled chiefly by economic and social expediency. The size of classes must be such as will give the maximal opportunity to each individual pupil with at the expenditure of more time, energy,



and money than the general public can approve and supply. The variety of subjects offered must meet as far as possible the individual needs of all the pupils, but must not be so great as to take, for the training of a few, public funds which are more definitely needed for the instruction of many. Although "an attempt to provide differentiation is the most marked characteristic of junior high schools,"<sup>2</sup> the extent to which this attempt may be carried is limited by the size and wealth of the community and by many other factors.

Such studies as have been made of measured differences in the intellectual abilities of secondary school pupils indicate two uses to which the results of intelligence tests may reasonably be applied in the differentiation of junior high school pupils. The results obtained from intelligence tests now available may be used as one element in the prognostication of the field of the pupil's probable educational and vocational future, pointing out for him the program of studies and work which will be of greatest usefulness to him; and they may be used in the prediction of the rapidity with which the pupil will be able to make progress in his studies. In other words, the results of intelligence tests may be used as one means of helping a pupil choose wisely the direction in which he should go, and then as a means of so classifying him that he will be associated with others who are going not only in the same direction but also at the same rate.

Most of the evidence that intelligence tests may be used as a basis for the guidance of pupils into the educational or the vocational field where they would be most successful, has been obtained by measuring the intelligence of pupils who of their own choice have already entered upon certain educational or vocational careers. The argument, therefore, is seldom that pupils divided and assigned on the basis of these tests were successful in certain courses or trades, but more frequently that pupils who made choice of these lines of work and were then successful in them, made such and such scores when measured by the tests; and therefore

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<sup>2</sup> Briggs: *The Junior High School* (Houghton Mifflin Company, 1920), p. 154.

that those who make such and such scores would undoubtedly be successful in these lines of work or study.

Determining the coefficient of correlation between the tests of intelligence and the school success of the pupils has been a popular method of determining the usefulness of intelligence tests in the guidance of pupils and was the method used by Wood at Kansas City, Mo., with a first-year algebra class in 1917.<sup>3</sup> The Stanford-Binet Tests of Intelligence and the Rugg and Clark Algebra Tests were given in a first-year algebra class. The coefficient (by the Spearman Foot-Rule) between intelligence quotients and class grades was .993, while the coefficient between the arithmetic means of all marks in the sixteen Rugg-Clark tests and the intelligence quotients was .998. Such unusually high correlations would not often be obtained, especially if computation were by the standard product-moment method (Pearson-Brevaïs), but the report is of interest. "Since there is a close relation between general intelligence and ability to learn algebra, it seems reasonable to conclude that the general intelligence of each pupil should be determined before he is required to take the subject. If he is clearly below normal in general intelligence, he should be prohibited from taking algebra unless there should be good reasons to the contrary."

Madsen reported the relationship of the Army Alpha Tests to success in the high schools of Omaha, showing that a difference of 20 to 30 points existed between the scores of corresponding classes in the Central High School and in the Commerce High School.<sup>4</sup> The differences in the scores obtained by pupils studying different subjects were so marked that Madsen concluded that "either the standards for success are relatively lower for the vocational subjects taught in Commerce High or a less degree of intelligence is required for success in them."

One of the most careful workers in this field is Professor Proctor of Leland Stanford University. During the school year 1916-1917 he examined 107 high-school pupils by means of the Stanford-Binet

<sup>3</sup> O. A. Wood: "A failure class in algebra." *School Review*, 28: pp. 41-49.

<sup>4</sup> Madsen, I. N. "Group intelligence tests as a means of prognosis in high school," *Journal of Educational Research*, 3:43-52; and "Relationship between general intelligence and success in certain high-school subjects," *Journal of Educational Research*, 3:396-398.

Scale and compared the results with the school marks earned during that year and with the teachers' estimates of intelligence.<sup>5</sup> Two and a half years later only 66 of the original 107 remained in the same high school; 20 of them had transferred to other high schools, and 21 had left school to go to work.<sup>6</sup> The average school rating of those who went to work was 73; of those who transferred, 77; and of those who remained in the same school, 79. The median intelligence quotient of those who went to work was 94, that of those who remained in school was 110. Of those who were originally found to have I. Q.'s below 90, only 25 percent remained in school at the end of a year, while of those having I. Q.'s above 110 it was found that 100 percent were still in school at the end of two and a half years. The correlations of the intelligence quotients of the 107 pupils with teachers' estimates of intelligence was .586,  $\pm$  .043, and that with the average of school marks was .545,  $\pm$  .046.

Similar study of the records of 955 high-school pupils tested in 1917-1918 by the Army Intelligence Tests, showed two years later that of those remaining in the high school only one-fourth had I. Q.'s below 100, while of those who had gone to work more than 60 percent had I. Q.'s below 100. As the result of these findings, Proctor believes that "discovering at the outset that from 15 to 30 percent of his (the principal's) pupils are incapable of succeeding in the conventional high-school subjects, he will undertake to make new adjustments to meet the situation. There will be fewer failures; more pupils will remain to take work that is adapted to their needs and capacities; and the high school will be less open to the charge of catering only to the intellectual aristocracy among its pupils."

Proctor has also furnished the most definite report showing the actual success of educational guidance.<sup>7</sup> This report gave measures of the relative success of two groups of pupils entering the high

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<sup>5</sup> Proctor, W. M. "The use of intelligence tests in the educational guidance of high-school pupils," *School and Society*, 8: pp. 473-478, 502-509.

<sup>6</sup> Proctor, W. M. "Psychological tests as a means of measuring the probable school success of high-school pupils," *Journal of Educational Research*, 1: pp. 258-270.

<sup>7</sup> William M. Proctor: *Psychological Tests and Guidance of High School Pupils*. (Bloomington, Ill.: Public School Publishing Co., 1921.)

school, one group having been carefully advised individually as to the work that should be undertaken and the other group having made their own selections of courses in the usual manner, although both groups had been examined by means of intelligence tests and found to be equally capable. That success in the first year of the high-school course is more certainly assured to the pupils who are guided in the selection of their courses is clearly indicated by the following table, adapted from page 30 of Proctor's report.

SUCCESS RECORDS OF FIRST-YEAR HIGH-SCHOOL PUPILS WHO WERE "GUIDED,"  
COMPARED WITH THOSE "NOT GUIDED"

Group	No. of Pupils	Percent Left to go to Work	Percent Transferred to Other H. S.	Percent Failed in	
				One Subject	Two Subjects
Guided	22	4.5	9.1	18.2	0.0
Not guided	107	12.1	13.1	30.8	10.3

The evidence in favor of vocational guidance in the junior high school is less abundant and direct than that in favor of educational guidance. The argument is again that those who belong to a certain group of trades or vocations make scores of a given size, and therefore that pupils who make scores of a given size may expect success in a given group of vocations, provided they have the other qualities and training needed to supplement their intellectual gifts.

The most extensive study bearing on this subject was conducted by the Division of Psychology of the Office of the Surgeon General, U. S. Army in 1918.<sup>8</sup> The intelligence test records of soldiers who claimed to belong to various occupational groups were studied, with results which may be of some value in the vocational guidance of pupils in the junior high school. Only selected vocations are given in the following table, and the grouping is that of the present writer rather than of the Division of Psychology. The table gives the average or median score of each vocational group of soldiers on Test Alpha, with the range of scores necessary to include the middle half of all scores made by the group.

<sup>8</sup> *Army Mental Tests: Methods, Typical Results and Practical Applications* (Washington: Government Printing Office, 1918). See also C. S. Yoakum and R. M. Yerkes, *Army Mental Tests* (Henry Holt and Co., New York, 1920), especially pp. 196-203.



TYPICAL SCORES FOR OCCUPATIONAL GROUPS IN THE ARMY. INTELLIGENCE  
TEST ALPHA

Occupations	Score Median	Interquartile Range
<i>Workers with simple tools and materials</i> .....	—	21-83
Laborers .....	35	21-63
Teamsters .....	41	23-68
Farm Laborers .....	42	24-70
Horse-shoers .....	44	25-70
Bricklayers .....	48	23-81
Painters .....	53	31-79
Blacksmiths .....	54	29-83
<i>Workers requiring considerable skill</i> .....	—	33-99
Carpenters .....	57	33-85
Butchers .....	58	33-85
Machinists .....	61	33-86
Plumbers .....	62	38-87
Chauffeurs .....	63	38-90
Telephone operators .....	70	58-99
<i>Workers requiring high-grade skill and knowledge</i>	—	52-133
Photographers .....	77	52-104
Electricians .....	82	58-110
Telegraphers .....	84	59-107
Mechanical engineers .....	98	63-133
<i>Workers with symbols and ideas</i> .....	—	78-
Bookkeepers .....	99	78-126
Stenographers .....	115	93-142
Accountants .....	117	101-145
Civil engineers .....	125	98-147
Physicians .....	130	101-165

Although the studies just mentioned and many others of a similar nature indicate the probability that an intelligence test score of a certain size may be used as a fairly good index of the vocations or courses of study in which the child might expect success, the public in general will wish to have further evidence from the actual success or failure of children who have been guided into the vocations or into the educational courses on the basis of the results of intelligence tests. Furthermore, it is quite clear that one can not use the test results alone as a basis for the guidance of pupils, for a given score in such a test may be typical of successful persons in a half dozen or more different specific vocations or curricula. The interpretation of the intelligence tests in educational and vocational guidance is largely negative, suggesting lines of work in which the child will probably fail rather than asserting that the individual



will be successful in a given field. Tests of aptitude and probable success in specific lines of endeavor are much needed by those engaged in guiding young people. Such specific tests, used in the junior high school in connection with courses for the exploration and discovery of vocational interests, would supplement the negative evidence of the intelligence tests and make a real science of vocational and educational guidance.

Objection has arisen in some quarters to the idea of advising pupils as to their futures on the basis of scores in tests. The claim is made that such a procedure is undemocratic and that it closes the door of opportunity to many who might otherwise enter the "higher walks of life." It is asserted that if a pupil is placed in "practical" courses at the junior-high-school age, he is being condemned to a "level of activity" which may not be the highest of which he is capable. The argument is usually that the pupil should be allowed to continue taking the general or academic course until he reaches a place where he can not make further progress, and then as a last resort he may be given some vocational instruction, *provided he has remained in school*.

If a pupil once started on a semi-vocational course is to be refused permission to return to an academic course, or if the advisor uses autocratic power and insufficient evidence, placing pupils mechanically according to their test scores and without regard to the pupil's interests and to other obtainable criteria, then certainly no right-minded person would argue for such vocational guidance in the junior high school. The tests at present available are so inadequate and crude that one who uses a single test score as the sole basis for a vital decision in the life of an American youth is guilty of most unscientific practice and possibly of a great injury to the child advised. Those who undertake to give educational or vocational guidance either in the junior high school or in more advanced grades must be persons of broad outlook on life, with a mature, well-balanced fund of active common sense and a clear understanding of the reliability and validity of the tests they employ.

Measurements of differences in the intellectual abilities of junior-high-school pupils, when supplemented by measurements of

their educational achievements and by the judgments of their teachers, may nevertheless be given most serious consideration in planning for the educational or vocational futures of boys and girls. Informing a pupil on the basis of such evidence that it would probably be useless for him to attempt to prepare for law, the ministry, or the "learned professions" might cause a momentary disappointment, but it would be less keen and less humiliating than the frequent failures in his studies and the constant struggle of working at tasks beyond his ability which would be certain to result from ignoring such predictions. Pupils guided by such evidences are not "condemned." They are rather "freed" from the prospect of being "failures" in school and probably even after they have left school. It is the pupils who are not given the opportunity in school to work at tasks which interest them and are not too difficult for them who are "condemned." The "single-track school" forces a large proportion of its pupils into the habit of expecting and achieving failure, which is certainly wrong from a moral and social point of view as well as from the personal standpoint of the one who fails.

Another misconception, implied in the opposition to the guidance of pupils, is that it is more noble and worthy for a pupil to take an academic course leading to the professions than it is to take a course leading to a trade. The maximal success of the world depends upon having each person do as well as he can the work for which he is best suited. The blind man does not feel that he is disgraced because he is not made an engineer on a railroad, nor does the man without musical talent condemn the world for not encouraging him to be a grand-opera singer. In a similar manner, those who are not gifted in the handling of ideas and symbols should not resent it if they are discouraged from becoming preachers and mathematicians, and those who have no interest or ability in mechanics should not chafe at being warned away from engineering as a profession.

Teachers are possibly to blame for some of the tendency to speak of the ability of the professional man as "higher" than the ability of the mechanic or laborer. Ability to use ideas, words, and symbols is not "higher" but is "different" from the ability to use

tools and raw materials. Both types of ability are necessary and entirely respectable if used for the common good. Measured by the scale of the laborer's ability, teachers would usually test "lower" than laborers, while on the scale of ability as a teacher one would no doubt find the teachers "higher" than the laborers. Teachers must take a broader view of the various life activities and realize that it is just as "high" and respectable to be a good street sweeper as it is to be a good teacher or lawyer. If the junior high school is to be a democratic institution, it will attempt to discover the differences in pupils' special gifts, and to train each pupil to be happy and effective in making his particular contribution to human happiness as efficiently as possible.

Intelligence tests are useful, not only in the educational and vocational guidance of junior-high-school pupils, but also in the grouping of such pupils for recitation purposes. Dividing an entering class into recitation sections according to the alphabetical list of names of the pupils is usually more satisfactory than dividing them according to the seats they happen to take on the first day of school, because the alphabetic scheme tends more certainly to secure groups of approximately the same *average* abilities. Within each group selected on the basis of the alphabet, however, a great range of educational and intellectual ability will be found. The slow, average, and rapid pupils will be associated together in each class. It is an economy of time for all concerned to have each recitation section composed of pupils all of whom have approximately the same degree of ability to make progress. Those who have tried them assert that the results of intelligence tests are an excellent partial basis for making up such homogeneous groups.

One of the earliest attempts at homogeneous grouping of junior-high-school pupils was that made under the supervision of Professor Thomas H. Briggs,<sup>9</sup> in 1915, at the opening of the Speyer experimental junior high school, which is operated jointly by the City of New York and Teachers College. The elementary school

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<sup>9</sup> For a full report on this experiment see the article by Dr. Briggs in the *Third Yearbook, National Association of Secondary School Principals* (Menasha: George Banta Publishing Company, 1920), pp. 53-62, entitled "Provisions for Abilities by Means of Homogeneous Groupings."

marks for the 275 boys who were entering this school from the sixth grades of five or more public elementary schools and the score of each boy in each of ten psychological and educational tests were secured. Extracts from Briggs' report follow:

"On the basis of these records the boys were ranked according to estimated ability and divided into groups of twenty-five, the limit being set by the number of seats in the recitation rooms. In the first weekly conference the teachers were informed of this phase of the experiment and told that the grouping was tentative, to be modified whenever they could agree that any two boys should change places. They were told, too, that they were expected to carry each group forward at a speed that seemed best for its powers of learning.

"At the beginning of four successive terms new groups of pupils who entered the school were similarly classified, each having been measured with new combinations of tests, the effort being to secure a battery that could be taken by a considerable number of pupils simultaneously and that could be scored with the most economy of time and effort. . . .

"As the term progressed the teachers from time to time made transfers of pupils from one section to another, usually because it became apparent that they had been badly classified. In a number of cases, however, the transfer was reversed a few weeks later and the pupil found himself in the same group as before. . . .

"At the end of each term, the teachers were requested to rank in the order of ability all of the pupils in their classes. From these rankings, which were entirely separate from the marks given for class achievement, was made a composite ranking to represent the best judgment of the entire corps as to each pupil's relative ability, whether he exercised it consistently on his lessons or not. That even this composite ranking was inaccurate goes without saying. . . . On the whole, the teachers agreed very well among themselves in their estimates of pupils' general ability, but a study of their reports leads to the conclusion that a group of representative public school teachers, all interested in their work and with their attention constantly directed toward the pupils as individuals, are, after months of instruction in classes of ideal size, unable to judge with anything like accuracy the relative ability of their pupils. . . .

"Both the prognosis made from earlier school marks and that from the standard tests proved highly significant of what the pupils would do in their subsequent work. In the order of their merit, we found a composite of all sixth-grade marks least indicative of what the boys would do, a composite of all marks in Grades I to VI, inclusive, somewhat better, and the ranking by the tests easily best of all.<sup>10</sup> In fact, if I had to rely on the rank given a boy

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<sup>10</sup> For the details of this study of the various means of predicting success, see Fretwell: *A Study in Educational Prognosis* (New York: Teachers' College Contributions to Education, No. 99, 1919).



after two hours of testing or on the judgment of the average teacher who had him in class for five months, I should with little hesitation choose the results of the tests. But even the previous school record, especially when supplemented by the grade teacher's judgment, will assuredly afford a classification better than that based on the alphabet, the neighborhood, or chance selection. Let me repeat again that any such classification as has been proposed should be only tentative, to be modified whenever it appears that a pupil can work to better advantage in another group.

"If the plan of homogeneous grouping is to prove successful, the teachers must be closely supervised, especially in the first few months. Being accustomed to attempt the same amount with each section of a class, the average teacher finds it difficult to break sharply from the practice. . . . The teachers must be led to find what the optimum pace for each group is and supervised until they learn to maintain it. In conference the teachers and principal should at the beginning of the term estimate approximately what each class may be expected to do, and then, as under the plan now in general use, progress should be roughly regulated by the program. . . .

"The ideal is to segregate pupils as homogeneously as possible and then to advance each group at its optimum pace, whether that be half normal or three-fourth normal or one and one-fifteenth normal. Any difference that results in substantial progress of the group without the unnecessary retardation of some and the discouraging failure of others equally earnest is surely worth seeking. . . .

"In no single instance have we felt that a pupil lost anything material by his classification; in the great majority of cases, the pupils were happier in their work and made better progress than they otherwise could have done. Some saved a year in their secondary school education, some a half-year, and some nothing at all; but none who remained a full two years (the elimination was very small) failed to be certified by their teachers as satisfactorily doing a full two years' work. Gratifying results have been manifest in the teachers themselves: their work has been more interesting, they have had less strain, and they have felt better satisfied with the results than under the usual organization. All of them have testified that they never wish to return to a plan whereby the classification is fortuitous and the expected progress uniform."

An interesting attempt at homogeneous grouping of pupils in the Washington Junior High School, Rochester, New York, has been reported by Glass.<sup>11</sup> Pupils entering this school in September, 1919, were classified, on the basis of their results on the Otis Group Intelligence Tests, the Terman Vocabulary, and the Chicago Rea-

<sup>11</sup> J. M. Glass: "Classification of pupils in ability groups," *School Review*, 28: pp. 495-508.



soning Tests, into full-schedule classes, three-fourths-schedule classes, and study-coach classes, the last being the pupils of the lowest scores in the intelligence tests. Teachers were not informed of the relative ranks of the groups, but through their contacts with the groups each teacher soon came to understand correctly what the ranks were. A repetition of the tests in February, 1920, gave the groups the same ranks, although individual pupils were somewhat changed in scores and in ranks.

Glass seems to feel a considerable degree of confidence in the tests as rough sieves for the first classification of pupils in the junior high school, but finds them inadequate for fine distinctions. Although justice seems done to each group, he finds that there is individual injustice in a few cases. He agrees with Briggs in urging the importance of the reclassification of individual pupils whenever later evidence from additional tests, teachers' experiences or retesting seems to warrant it.

Superintendent Callihan tried an experiment in which he employed the results of the Illinois Examination as one element in classifying the eighth-grade pupils at Galesburg, Illinois.<sup>12</sup> The tests were given in May, 1920, to all seventh-grade pupils who were going into the eighth grade. Mr. Callihan reported as follows:

"The scores were tabulated and the pupils from all the seventh-grade rooms in the city were classified on the basis of these results and placed in homogeneous groups. Eight rooms were available in a central building, and here the two hundred and eighty-five eighth-grade pupils were brought together. For the sake of clearness the rooms were lettered A, B, C, D, E, F, G, and H. The students ranking lowest in intelligence were placed in Room G; the next in Room H, and so on up the scale to Room B. In Room A those pupils were placed who had already been in the eighth grade one semester and whose I. Q.'s were approximately normal. The lowest group was placed in Room G rather than in Room H, so that the designating letter would not indicate to the pupils whether they were in the best or the poorest room.

"A course of study was then worked out for each room. For example, we expect the pupils in Room G to do only the minimum essentials for promotion; Room H does all that Room G is required to do, plus an additional amount; Room F is required to do still more; and so on up the scale until

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<sup>12</sup> T. W. Callihan: "An experiment in the use of intelligence tests as a basis for proper grouping and promotions in the eighth grade." *The Elementary School Journal*, 21: pp. 465-469.

Room B is reached. In this room those pupils whose I. Q.'s ran above 120 were placed, and they are permitted to advance through the regular course of this grade as rapidly as they are able.

"When school opened in September, pupils in all the rooms except A and B were given to understand that they might be advanced to a higher room provided their work was above the average for their room. It was also explained that if they did not keep up with the others in the room, they would be demoted to a lower room. It has been necessary thus far to make only five transfers, three of which were promotions and two were demotions, a fact which is very good evidence of the reliability of intelligence tests as a means of grouping pupils on the basis of ability.

"In order to check up the results of the test given in May, 1920, the same test was given in October, 1920, the results placing the rooms in exactly the same order as they were placed by the first test.

"Up to the time that this article was written, Room B had completed a little more than half of the regular work of the complete eighth-grade requirements, and the semester was not then half over. In fact, in some lines the pupils were far ahead of the pupils in Room A who had spent one-half year in the eighth grade before entering in September. . . . If the pupils of Room B continue to progress as we believe they will, they should complete the last five years of their elementary and secondary school work in at most four years. In doing this, instead of forming habits of indolence and 'get by,' they will form habits of industry and 'do your best' which will carry over into their work which is to follow."

The most fundamental objection to the classification of pupils into groups of homogeneous intellectual ability is that such a group would lack certain differences between individuals which will almost certainly characterize every other group in which the pupil may later live. The argument is that the bright pupil would not have the opportunity to develop his capacity for leadership in a group of pupils as bright as he, at least not as great opportunity as he would have in an unselected group. This argument would be more important if the homogeneous intellectual grouping were to extend to the playground, the gymnasium, the auditorium, and the social organizations. Since this grouping is only for the classroom, the objection need not be considered, except in so far as it affects the work of the class. Experience has demonstrated that in a homogeneous group, classified on the basis of a test, there are still many recognizable differences of ability, and that the rivalry for the leadership of one's peers is keener than for the leadership of a miscellaneous group.

Another objection is raised by those who feel that the slower pupils need the presence of the more rapid as a stimulus. Here, again, the lack of absolute uniformity furnishes in actual practice all of the stimulus necessary. In fact, it is usually more effective to have a pacemaker who is not too far in advance. Dozens of men were brought before the writer, while in charge of psychological examinations in a U. S. Army camp, accused of being stubborn and unwilling to try to perform their duties, while the real difficulty was that their pace makers were so far ahead of them as to be almost out of sight. When these men were placed in a group of their equals, with an instructor who understood their gait, real interest and competition arose among them, and the entire group moved forward at a much more rapid rate than they would have moved if left in a miscellaneous group.

The experiments so far conducted give little support to the objection that bright pupils when grouped together tend to overwork and break down. "Break down" from study is very rare, and when it does occur is more often due to trying to keep up with a group of more able pupils than to any other cause. "Overwork" is much more often "late hours" and "social life" than school work. It is not probable that pupils will really overwork when moving forward with other pupils of the same ability at their optimal rate.

The expectation that pupils classified in the slow moving group would feel the stigma of not being in the normal or rapid groups does not seem to be borne out by experience. It is true that where it is known that a given class is slow in its studies, and where the teachers have not been led to recognize that persons of "different" gifts from their own are nevertheless just as worthy, some few pupils have pointed a scornful finger at the "boobs," but usually without any serious consequences. The slow pupils are usually happier than under the miscellaneous grouping plan, and in many cases an unusual amount of class spirit has developed among them, possibly as a "protective reaction." It is certainly desirable, however, for the pupils and teachers to rid themselves of any feeling that the rapid group is deserving of any more honor and respect than the slow. The pupils should as far as possible know only

that they are in Miss B's or Miss E's room, without being informed of the real reasons for their assignments, except in special cases. Neither the pupils nor their parents have ever offered any objections to the homogeneous grouping as carried on at the Speyer School.

One of the greatest dangers now facing those interested in intelligence tests is that they will be accepted and used with too little critical judgment on the part of junior-high-school principals and other school administrators. It is so easy to become convinced that there is value in the method and so difficult to judge just how much dependence may be placed in it that many grievous mistakes are certain to be made. The same difficulty exactly arose in the U. S. Army cantonment in which the writer had charge of the psychological examination of troops. Company commanders, who were doubtful at the beginning, came to put entirely too much confidence in the results of the intelligence ratings of their new men.

An illustration of this uncritical attitude among well-trained school administrators was found by the writer in the Speyer Junior High School of Teachers College, in which homogeneous grouping has been most carefully practiced since 1915. Because of the greater inconvenience of scoring and tabulating the separate tests which had been used in previous years, the principal decided to employ the Otis Tests as the basis for his grouping of new pupils entering in September, 1920. Looking through the Manual for these tests, he found convenient "coefficients of brightness" which seemed to be worth more than the raw scores for his purpose. The pupils were therefore tested by the Otis Tests and their names arranged in order according to their coefficients of brightness. All pupils having "coefficients of brightness" from 241 down to 162 were placed in one section, those from 159 to 138 in another section, and so on for the five sections of the entering class.

The writer, having a group test of intelligence which he wanted to evaluate, asked permission to try it on the junior-high-school pupils and was surprised at the confidence with which teachers gave him information regarding the coefficients of brightness of their pupils. When the results of the new group test, the Mentimeters, failed to correspond with the Otis Coefficients, it was proposed to



the principal that still a third group test, the National Scale A, be given to these same pupils. When the results of the National Scale A failed to agree fully with either of the two previous tests, the principal began to ask which of the three tests came nearer the truth.

In order to determine the relative merit of the three tests in predicting the success of junior-high-school boys in this particular school, correlations were made (by the product-moment method) between the scholarship marks of these 120 pupils at the end of the first semester and their scores in each of the three intelligence tests. In the case of the Otis Tests, the correlation was higher with the coefficients of brightness than with the unmodified Otis scores, showing in our opinion, that the teachers' marks were influenced more decidedly by the derived ratings which they knew and upon which the pupils had been classified than by the relative abilities of the pupils. The coefficients obtained were as follows:

Scholarship marks and Otis C. B.'s.....	$r = .535, \pm .047$
Scholarship marks and Mentimeter Scores.....	$r = .481, \pm .050$
Scholarship marks and Otis Scores.....	$r = .470, \pm .050$
Scholarship marks and National Scale A Scores.....	$r = .459, \pm .051$

In order to determine the relationship of the three group tests of intelligence to each other, intercorrelations were made between the tests, with resulting coefficients as follows:

With	Otis C. B.	Otis Score	National Score
Otis Score .....	.851, $\pm .025$		
National Score .....	.565, $\pm .043$	.546, $\pm .044$	
Mentimeter Score .....	.587, $\pm .040$	.641, $\pm .037$	.731, $\pm .031$

The highest relationship between two tests was clearly between the National Scale A and the Mentimeter scores.

To determine the degree to which each of the three tests is a measure of language ability, the same pupils were given the Briggs Analogies Test Alpha. Its correlations with the scholarship marks and the three intelligence tests were as follows:

With Otis Test Score.....	$r = .442, \pm .050$
School Marks .....	$r = .419, \pm .054$
National A Scores.....	$r = .331, \pm .055$
Mentimeter Scores .....	$r = .297, \pm .059$



It would appear that the scores in the Otis Tests were influenced by language factors, and that the scholarship marks were influenced by the same factors. It would not be most economical of time, therefore, to give both the Otis Tests and the Briggs Analogies Test, for they are too nearly alike. Economy would suggest combining two tests which correlate little with each other, but highly with school success, thus getting as wide a range of different intellectual abilities as possible to use as a basis for homogeneous grouping.

Examination of the foregoing correlations and of the correlations of the individual tests contained in the three test booklets led to the conclusion that the Otis C. B.'s were less satisfactory as a basis of homogeneous classification for these particular boys than the Otis Scores would have been, and that the Otis Scores were less useful than the scores of either of the other two tests would have been. In the case of older pupils or of younger pupils, or in the case of junior-high-school pupils in other places, it is possible that the relative value of the three tests would be changed. It is also possible that the relative value of the tests would be different in this same school if the purpose were something other than the prediction of school success in the first year of junior-high-school work. Actual trial is the only safe method of determining the value of a test for a given purpose, and one should not be satisfied with a test which works fairly well if another can be found which works better.

One of the characteristics which experience has indicated as necessary in a satisfactory group test of intelligence is that the separate tests composing it should be steeply graded in difficulty from easy to hard, and that the time limits be so adjusted that one's score will indicate *how difficult* a problem can be solved, to a greater extent than it indicates *how many* he can solve in a given time. *Speed* tests are less indicative of ability to do school work than *power* tests. The dullest pupil must make a considerable score and the brightest pupil must not approach a perfect score if the test is to indicate relative strength with anything like precision. For the classification of junior-high-school pupils, therefore, the tests composing the battery should each be so easy at the

beginning that second or third-grade pupils could make some appreciable score and so difficult at the end that college students could not make perfect scores.

### SUMMARY

Intelligence tests have been used successfully in the educational guidance of pupils of junior-high-school age and in the classification of such pupils into groups of homogeneous intellectual ability. The evidence they furnish should be supplemented by all of the exact information it is possible to secure about each pupil, and these data should be evaluated by someone who uses good "common sense" and understands the limitations of the tests and of the other evidences. Changes of classification should be made promptly whenever new evidence is found that outweighs the data upon which previous action was based.

The classification of junior-high-school pupils into groups having common educational and vocational goals, and into subdivisions having the same ability to make progress toward these goals, is only the beginning of the real problem of adjusting the school to the abilities of its pupils. Homogeneous classification is not an end in itself. Teachers must be brought to recognize the usefulness and dignity of the classifications and must be trained to advance each group at its optimal rate. Administrators must be constantly on the alert to find the best means possible for the classification of their pupils and should not be tempted into the acceptance and use of a scheme without scientific evidences of its superior value.

## CHAPTER VII

### THE ADMINISTRATIVE USE OF INTELLIGENCE TESTS IN THE HIGH SCHOOL

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In 1914 the writer, under the direction of Dr. Whipple, began the preparation of a thesis on "Mental Tests and the Performance of High-School Students as Conditioned by Age, Sex, and Other Factors." It was hoped that as a result of the investigation a battery of tests might be developed that could be given to groups of high-school students, thus providing the principal or superintendent with a convenient instrument for predicting probable success in high-school work. At that time no such instrument had been developed. Furthermore, practically no reliable norms had been established for single tests that might be used in such a battery of tests.

In this thesis the value of a group test was emphasized, and in the closing paragraph it was predicted that in the near future (within a half-century) the mental testing of high-school pupils would be as common as physical examination is in the larger and more modern high schools.

The writer could not have foreseen psychological examination in the army, with its resulting impetus to mental testing in the public schools, as a result of which within a decade mental testing has experienced a growth and development which normally would have required a much longer period.

In general, this rapid growth has been advantageous and fortunate. It is true, however, that the testing movement is likely to suffer from 'growing pains' and to receive some reverses on account of this rapid development. Psychologists have been marketing group tests at a rapid rate, some of which under normal conditions

would have been tried out more thoroughly before placing them in the hands of school administrators only partially trained in administering them. More significant, however, is the fact that school administrators and teachers have not had the opportunity for securing training in the use and interpretation of the tests. As a result of this lack of information school administrators and teachers who have not studied the movement are dividing into two camps. Those who are by nature skeptical can see no value in attempting to measure anything so complex as general intelligence. They see in mental tests another educational fad and are willing to treat them as such. The other camp, a more credulous group, accepts mental tests as a mysterious instrument with which they are able within a period of thirty minutes to judge a high-school pupil's value to human society. They are believers, although too often they do not know clearly what they believe. Those who want to see the full value of mental testing realized sometimes can not help wishing that these believers were less credulous and enthusiastic.

School administrators and teachers who have made a careful study of mental testing see in it little that is really new except the scientific method by which it is done. They realize that for many years superintendents, principals, and teachers have questioned students and by their answers have formed judgments of their ability to succeed in school work. They see in mental tests an instrument for supplementing their crude and hasty judgments. They realize that mental tests are not infallible and that many conditions may modify a test score, making it misleading and unreliable. They know the degree of reliability of the tests and govern themselves accordingly. They realize how difficult it is to judge accurately the general intelligence of a high-school pupil and therefore welcome mental tests as an aid which furnishes within a short period of time objective data that make comparisons fairly reliable.

The author (as principal) has had an opportunity to observe these attitudes among the teachers in the University of Minnesota High School, where for the past five years pupils have been tested and classified on the basis of the results of the tests alone. A sane attitude toward tests develops as the knowledge of the possibilities and limitations of tests develops.



These same attitudes were manifested by officers in the United States Army. The mental tests were of greatest service among those officers who realized their possibilities and limitations. The officer who wished to get rid of a subordinate officer with fifteen years' experience because he rated "C" on the Army test did not understand that fifteen years' training of an average man in a relatively simple mechanical activity would give service quite comparable to that of a high-grade man trained in the same field for a period of two or three months. Officers failed frequently to comprehend that the tests did not give a measure of all the desirable virtues a man might possess. The tests were designed to measure general intelligence only and could not for that reason measure the results of specialized training. Every psychological examiner in the army was confronted first with the problem of educating those who were to make use of the tests in order to prevent their misuse. Similarly, the problem of the proper use and interpretation of tests of high-school pupils embodies a problem of education in view of the fact that the giving of the tests, the administrative use to be made of them, and their interpretation are in the hands of men and women with little training in the field of mental tests. It is encouraging to note in this connection the large increase in enrollment in courses in educational psychology and mental tests in our colleges and universities, especially during the summer session. Educational periodicals are rendering excellent service in this educational program. The officers of the National Society for the Study of Education are to be commended for devoting their entire *Year-book* to the discussion of intelligence tests.

#### WHAT DO MENTAL TESTS MEASURE<sup>1</sup>

Mental tests are designed to measure native mental ability, not achievement. The school administrator should not confuse mental tests with achievement tests. They serve quite different functions.

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<sup>1</sup>For a full, and somewhat technical discussion of this complex question read "Intelligence and its measurement: a symposium," by E. L. Thorndike, L. M. Terman, F. N. Freeman, S. S. Colvin, Rudolph Pintner, B. Ruml, S. L. Pressey, V. A. C. Henmon, Joseph Peterson, L. L. Thurstone, Herbert Woodrow, W. F. Dearborn, and M. E. Haggerty. *Journal of Educational Psychology*, 12: March and April, 1921.



The achievement tests are designed to measure the results of a pupil's attempt to master a definite field of knowledge. They attempt to tell how successful his efforts have been. The mental tests are designed to tell, in advance of any effort, how well the pupil would succeed if he attempted to master a definite field of knowledge. Achievement tests are a measure of what *has happened*. Mental tests measure native ability, which is one important factor in predicting what *will happen*.

One frequently hears it said that the results of mental tests are almost wholly dependent upon the previous training of the person tested; in other words, they are thought of as achievement tests, the results of which show, not native ability, but the presence or absence of favorable environmental influences. It is doubtless true that mental test results do reflect the influence of the environment of the pupil tested; but we may ask, to what extent is the mental test score determined by environmental factors? Are environmental factors so potent that they render the test score useless as an index of native ability, or are their influences so slight as to be almost entirely disregarded? A child reared in an environment where, despite his desires, he was not taught to read, would of course score zero on a test designed for literates. Obviously, his score would in no sense be a test of his native ability, but rather a test of his reading ability. This illustration makes it clear that in making mental tests it is necessary to assume a minimal *common* environment for those who are to take the test. In constructing a test for high-school and college students one is justified in assuming literacy of the average fifth-grade child. To reduce further the errors that might arise from variation in speed in reading and writing, the amount of reading and writing required in the test is reduced to a minimum. With these precautions in the selection of test material suitable to the group to be examined, it is not likely that differences in environment within the group would invalidate the mental test scores. The examiner should, however, take account of extremely unfavorable environmental factors in individual cases, for example, language deficiencies of foreign pupils, and re-examine them with tests that do not presuppose ability to read English.

Mental tests containing general information, arithmetic problems, opposites, and vocabulary are condemned by the layman as tests of mental ability because they are unfair to pupils with unfavorable school, home, and social influences. If pupils exposed to unfavorable environment always did poorly in these tests, the objection might be more significant. Even then one would have to reckon with physical inheritance as well as with social inheritance.

Furthermore, children of approximately the same age, reared in the same home, taught by the same teachers, may receive radically different scores on these tests while children from most contrasted environments may receive similar scores.

Some raise the question of the time limits on the tests, which they say, make the tests unfair to the "slow, accurate thinker." Experimentation<sup>2</sup> has shown that doubling the time on the Army Alpha makes very little difference in the relative standings; the coefficient of correlation between scores based on standard time and scores based on double time is 0.965. The median score of the group that had double time was, of course, higher; but the relative position of the men was practically unaltered.

Contrary to general belief, the slow thinker is not necessarily the accurate thinker. This can be demonstrated by selecting one group of test papers in which only 50 percent of the items are attempted, and comparing the accuracy of this group with another group of test papers in which 75 percent of the items are attempted in the same period of time. Although the opportunity for error in the latter group is 50 percent greater than in the former, it will be found that the rapid pupils have a smaller percentage of error than the slower pupils.

Some school administrators contend that physical and mental conditions fluctuate so much from day to day that mental tests can not be relied upon as a measure of a pupil's general intelligence. It is true that extreme physical or mental disturbance at the time of an examination may materially alter the mental test score of an individual pupil. If these abnormal conditions are known, the examination of the student should be postponed. The unreliability of tests due to abnormal physical and mental conditions may be

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<sup>2</sup> *National Academy of Science Memoirs*, 15: 1921, Part II, Ch. 9, p. 416.

almost entirely eliminated by repeating the same test with a week intervening, or by giving different forms of the same test or by giving different tests and using the average of the two trials.

The question what mental tests really measure is of general interest to the school administrator but the question he is more interested in from a practical point of view is; do mental tests enable the administrator to predict success of a pupil in high-school work? This question will be answered in the section, "Mental Tests and School Marks."

### THE SELECTION AND GIVING OF MENTAL TESTS

School administrators will experience little difficulty in selecting high-school tests, since the psychologists in making the tests usually have the administrative use of the tests in mind in their construction.

A good test for high-school students should meet the following standards:

1. The test should differentiate. It should be sufficiently difficult to test the most capable pupil and easy enough to permit the least capable pupil to do something with it. In brief, the results of the test should contain neither zero nor perfect scores.

2. It should possess a high coefficient of reliability. The coefficient of correlation between two applications of the test should be above  $+0.80$ . The higher the coefficient of reliability, the better.

3. It should give a coefficient of correlation of  $+ .50$  or higher with average school marks and with the estimate of intelligence of pupils by teachers. In applying this criterion it should be kept in mind that unreliable marks and poor judgment of teachers may be factors in lowering the correlation.

4. The instructions for giving the test should be simple and direct. The technique of giving the test should not be complex.

5. The directions to the pupil should be such as to insure a clear understanding of what is to be done in the test. Ample fore-exercises aid in obtaining a clear understanding by the pupil.

6. The test should be so constructed as to make possible, rapid objective scoring.

7. It is convenient to have the time needed for giving the test limited to a single high-school period of forty minutes.

8. It is not necessary to call attention of administrators to the fact that cost is one criterion that should not be overlooked.

All tests for high-school pupils now available are accompanied by a carefully prepared manual of instructions for giving the tests. It is imperative that administrators follow these instructions *verbatim* and that the giving of the tests be entrusted only to such persons as understand the importance of uniformity in method of giving tests. Comparison of groups within the school system and comparison with standard norms will mean nothing unless uniformity of method of giving the test is secured.

Where assembly halls are available, a large number of pupils may be handled by a single examiner with an adequate number of proctors.

Seats with arms on which to write are desirable; but where these are lacking, lap boards are a convenient substitute. In so far as possible, pupils should be so seated as to remove the temptation to copy.

Proctors should make notations on the papers of individual pupils who suffer interruptions or exhibit irregularities that would clearly modify the test score, such as copying, illness, improper attitude, confusion in turning to next test, and lack of effort.

The work of scoring mental tests is not particularly irksome when it is done promptly and systematically by all of the teaching staff. Speed and accuracy are secured by assigning one teacher or a group of teachers to a single test. They soon learn the key and the whole process becomes relatively automatic. The addition of the separate test scores should be assigned to a teacher who is rapid and accurate in the process of addition, and the additions should be checked by another person if an adding machine is not available. Another teacher should be assigned to classifying scored tests according to sex, age, grade, etc.

By a systematized procedure the staff of a high school of 400 pupils could score any group test for the entire school in from two to five hours. By a haphazard procedure the same task might worry an entire staff at odd intervals for a week or more. Admin-



istrators reading this will in many cases be reminded of piles of unscored tests in their offices that have not received this prompt and systematic treatment. Let us see to it that tests are not placed on the shelf along with unused laboratory equipment, purchased because it was fashionable and well advertised. Tests are of no use until they are scored, but much remains to be done after they are scored.

### RECORDING THE TEST SCORES

The author examined all entering pupils in the University High School for four years before providing for a satisfactory record of the results. If the test scores are to be of value they must be readily accessible to teachers and administrators. The place for the test scores of individual pupils is on the permanent record card, which should contain among other things the pupil's scholarship record for the four years. The following is suggested as a convenient form for the mental test record on the permanent record card.

Name of Test	Date Given	In what Grade	Standard Median	Score	Class Median	Percentile Rank in			I. Q.	E. Q.	I. B.
						Standard Scores	Class	School Marks			

The date should be included because the interpretation of a test score obtained in the freshman year would not be the same as that of one obtained in the senior year. The percentile rank (P. R.) gives the score a meaning in relation to a large group. Percentile rank may be interpreted as the percent lower. This will be discussed later on. Intelligence quotient (I. Q.) provides a rating which makes allowance for the age of the pupil. Some group tests provide approximate I. Q. ratings. Where data are available, the efficiency quotient (E. Q.) could be recorded.

The reasons for placing the mental test record on the permanent record card are so obvious that they do not warrant extended dis-



cussion. Interviews with pupils in regard to scholarship may be made more intelligently with knowledge of their standing in the mental tests. Both records are available at once by this method. By having the test records on cards the calculation of coefficients of correlation is simplified.

Only once in the author's experience has he received a record of mental tests on a transfer credit blank. In this case "P. R. 38; I. B. 91" was written at the bottom of the card. This suggested that it would be advisable to provide adequately for a mental test record on the blank for transferring credits. This is important since it gives an official record of the tests the pupil has taken, thus making duplication of tests unnecessary. If the pupil is given the same test twice, the second score may then be interpreted in the light of his previous experience with the test. The form of record on the transfer credit blank could very well be a duplicate of that on the permanent record blank.

### TABULATION OF RESULTS

#### Age-Grade-Score Distribution

For convenience in the tabulation of the results of testing 6000 high-school pupils in Minnesota the author devised a blank<sup>3</sup> which shows the distribution of scores for all ages for grades 7 to 12. The instructions for the use of the blank are printed on the back of the blank. This is a convenient device for collecting data for graphs like those in Figs. 2 to 9. It serves a triple function as a tabulation sheet, a percentile graph, and a correlation graph (See Fig. 1).

The figures in the vertical column at the left (Fig. 1) represent the units of the Miller test score by tens. The figures at the head of the other columns are the intervening 9 digits. The figures at the bottom will be explained later.

Let us assume we wish to tabulate the results of the tests of a ninth-year class of 80 pupils. We will use the dot (.) as a tally

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<sup>3</sup> Published by the World Book Company, Yonkers, N. Y.

symbol. It will be convenient to have one person read the scores and another do the tallying, although one person can do both. Assuming the first score read to be 83, a dot would be placed in the column headed "3" to the right of "80" in the left-hand column.<sup>4</sup> A score of 37 would be indicated by a dot in the column headed "7" to the right of "30." A score of 20 by a dot placed in the column

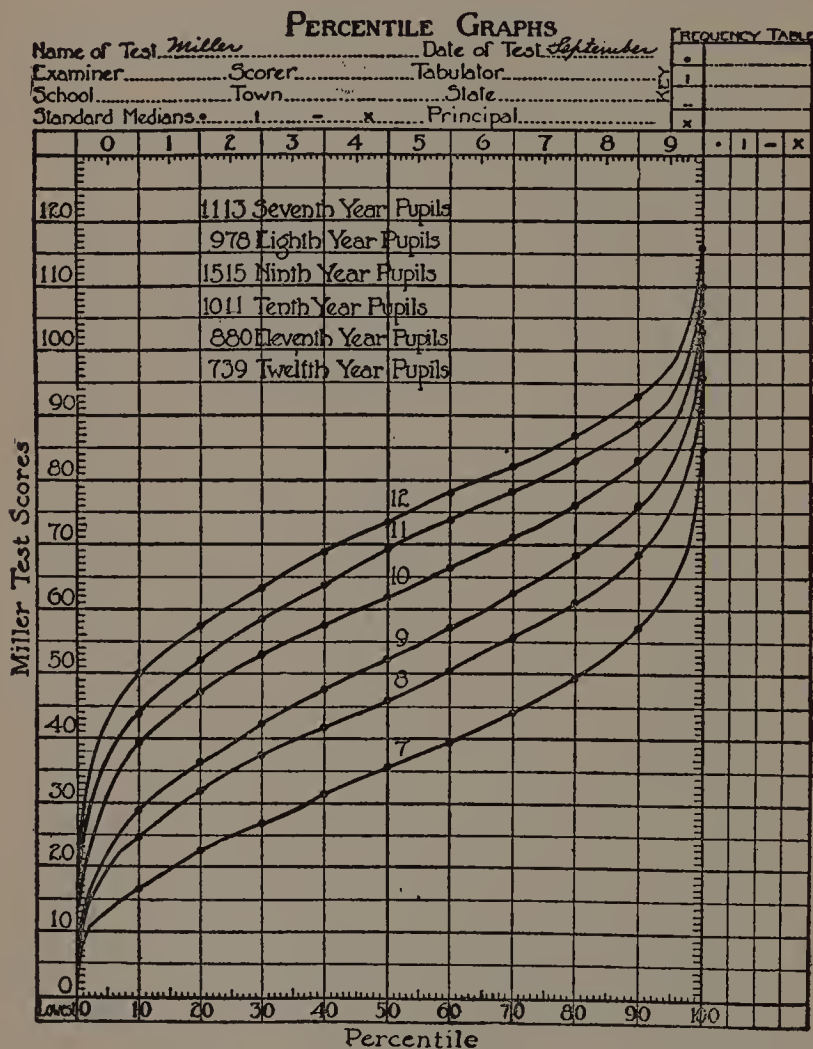


FIG. 1

By courtesy of the World Book Company, Yonkers, N. Y.

<sup>4</sup> The use of the blank as a tally sheet is not illustrated in Fig. 1.

headed "0" to the right of "20." It will be observed that this method locates each score to the smallest unit of the scale.

When all the 80 freshmen scores have been tallied, a table of frequency by tens may be made by counting the dots horizontally across the blank for each ten units and placing the number at the proper level in the column immediately to the right of the column headed "9," the column headed by a dot.

Three other classes may be tallied in the same way on this same blank by using the other symbols indicated in the key. Write after each symbol in the key the name of the group it represents.

### The Percentile Graph

As an aid in tabulation and to facilitate the interpretation of the results of tests the percentile graph will be found most convenient.

In constructing a percentile graph of the 80 freshmen scores, locate the lowest score made by a freshman. Let us assume that the lowest score made is 23. Make a small circle, (o), on the scale at the left, on the vertical line rising from the zero percentile, at 23. The next point on the graph will be the score of the freshman who is 10 percent of the group above the lowest. Since there are 80 in the group, the tenth percentile would be the eighth freshman. Beginning with the lowest, count the tallies in order to the eighth. Note what the score of the eighth freshman from the lowest is and put a small circle at that point on the vertical line locating the 10th percentile (marked 10 at the bottom). The twentieth percentile score would be that of the sixteenth freshman from the lowest; the thirtieth percentile, the score of the 24th freshman, etc.

When the remaining percentile scores have all been indicated as was explained for the tenth and twentieth, join the small circles by a curved line.

Percentile graphs for the other three classes may be constructed in the same manner on the same blank. There are shown in Fig. 1 percentile curves for students of six different school years.

If one does not wish to use the blank as a tally sheet, data for the percentile graph may be obtained by stacking the test papers in order from the lowest to the highest. Then the several percentiles

may be located by counting through the papers, noting the score found on the test paper that represents every tenth percentile.

The graph shows the range of scores from the lowest (lower left) to the highest (upper right).

The point where the percentile graph crosses the 50th percentile line locates approximately the median for the group and may be read directly from the scale on the left. (See Fig. 1.) The 25th and 75th percentiles (the first and third quartiles) of the group may also be located in the same manner as the median by reference to the graph.

To determine the percentile rank of any individual freshman proceed as follows: Locate his score on the scale at the left; from this point follow an imaginary horizontal line to the point where it intersects the percentile graph for the ninth year; from this point of intersection let fall an imaginary perpendicular. The point of intersection of this perpendicular and the base line is his percentile rank, P. R. This figure shows the percent of the group that is lower than this individual.

One common method of comparing two groups of pupils is to state the percent of one group that falls above or below the median of the other group. For example, in Fig. 1 find the median of the freshman group (intersection of 9th-year curve with 50th percentile); follow an imaginary horizontal line to the left to the point of intersection with the percentile curve for seniors. From this point let fall an imaginary perpendicular. The point of intersection with the base line will be the percent of the senior class that is below the median of the freshmen class. The percent of seniors above the median of the freshmen is 100 minus this number.

The results that appear in the percentile graphs which follow make it evident that the score of a pupil of any given age should be interpreted in the light of the grade location of the pupil. For example, from the percentile graphs for pupils 16 years of age, Fig. 5, it will be noted that a pupil 16 years of age in the seventh year, scoring 55 would have a percentile rank of 95, in the eighth year a percentile rank of 88, in the ninth year, 66, in the tenth year, 26, in the eleventh year, 17, and in the twelfth year, 0, *i. e.*, 55 is the lowest score obtained by any pupil 16 years of age in the senior year in high school.



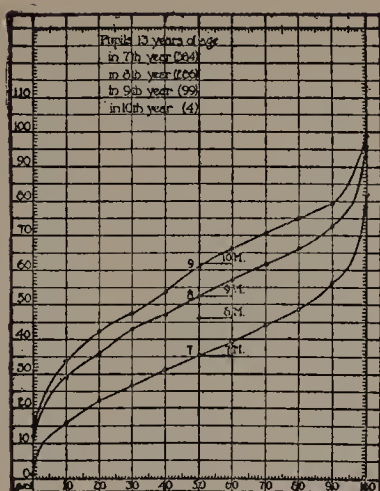


Fig. 2

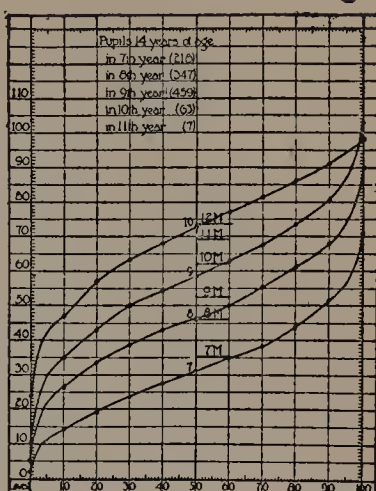


Fig. 3

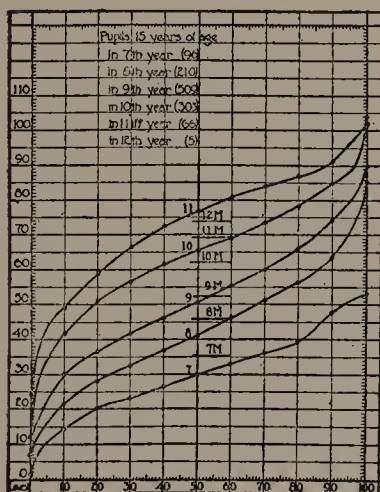


Fig. 4

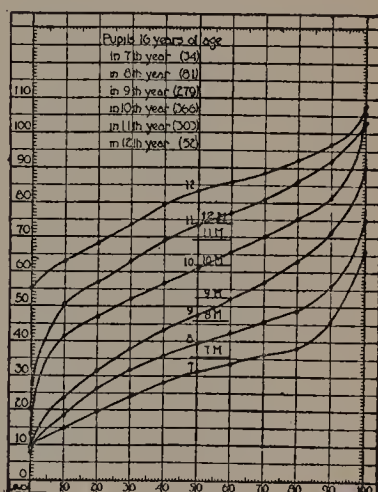


Fig. 5

The same score, 55, interpreted in the light of norms for pupils of all ages in grades seven to twelve (Fig. 1) would show the pupil to have the following percentile rank; in seventh year, 88; in eighth year, 68; in ninth year, 56; in tenth year, 33; in eleventh year, 24; in twelfth year, 17.

With the explanation of percentile graphs already given, the reader should be able to interpret the percentile graphs without further detailed explanation. On each percentile graph the medians



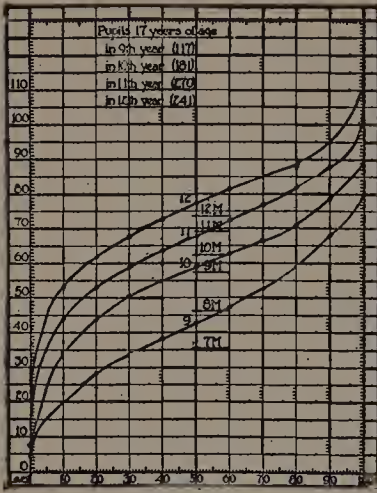


Fig. 6

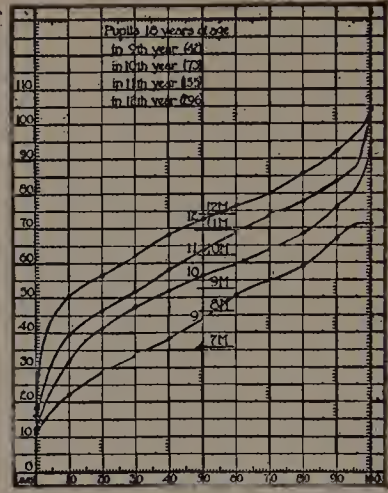


Fig. 7

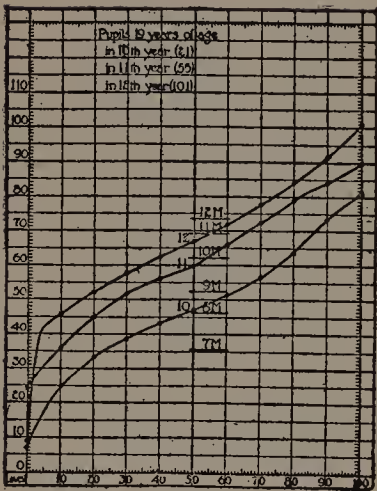


Fig. 8

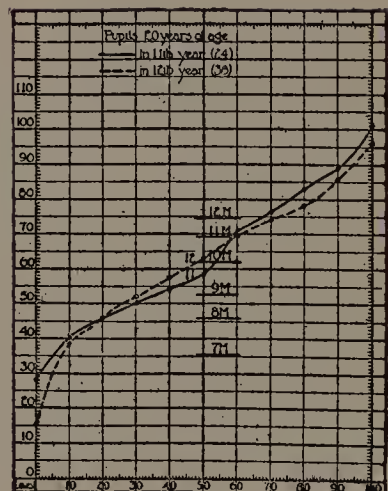


Fig. 9

for grades 7 to 12 are indicated by short lines on the 50th percentile. It will be observed in Fig. 5 that the medians for pupils 16 years of age in the seventh, eighth, and ninth grades are below the standard medians for those grades. The median for pupils 16 years of age in the tenth grade is almost the same as the standard median for that grade. The medians for pupils 16 years of age in the eleventh and twelfth years are above the standard medians for those years.

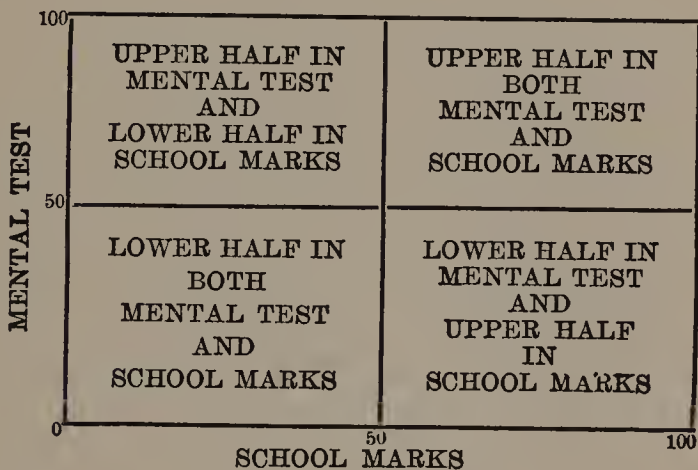
## CORRELATION GRAPHS

The percentile graph blank (See Fig. 11) is very convenient for showing graphically the correlation between test scores and school marks, or the correlation between the different mental tests.

To construct a correlation graph on the percentile graph blank first convert the test scores and school marks into percentile ranks. The percentile ranks may be obtained with a fair degree of accuracy directly from the percentile blanks as already explained.

In the correlation graph indicate the position of each pupil by a small circle. A pupil with a percentile rank of 90 in the test and a percentile rank of 80 in school marks would be located at the intersection of the horizontal line marked "90" with the vertical line marked "80", assuming that the percentile ranks in the test are plotted on the ordinates (the verticals) and the percentile ranks in school marks are plotted on the abscissae (the horizontals).

The fiftieth percentile lines in the tests and school marks divide the graph into quarters. It will be observed that all pupils in the different quarters may be described as follows:



## CLASSIFICATION ON THE BASIS OF TEST SCORES

The percentile graphs of Fig. 1 show the wide range in scores in any one year and also the overlapping of all of the years from the seventh to the twelfth. The fact that high-school students vary widely in ability was known long before any one thought of using

mental tests. It is true, however, that in spite of this knowledge we have continued to try to teach all pupils the same material by similar methods in the same period of time. Experience has shown most administrators many times that high-school pupils can not be handled satisfactorily when treated as if they were a homogeneous group. This has led to numerous administrative schemes intended to take care of these individual differences. The tendency among administrators is and has been to put too much faith in the device without enough attention to the actual teaching process.

In schools that are large enough to have more than one section in any given subject, much can be gained by sectioning the pupils on the basis of the mental test scores.

For five years the entering freshmen in the University of Minnesota High School have been given mental tests prior to the opening of school. The class is large enough to make only two sections. Those above the median in the tests are assigned to one section and those below the median to another section. At the time they are given the mental tests they are asked to fill out class cards for each subject they wish to take, leaving blank the room, period, and section, which are filled in by the office secretary after the tests have been scored. The pupils are asked to call at the office for the cards on the opening day of school. These class cards provide the pupils with their schedule of classes and serve as admission cards to classes. The teacher collects the cards and has at once her class roll. The same plan of registration is followed for the upper classes, except for the mental tests, which were given when they were freshmen. They fill out the class cards at the close of the preceding year. This plan of registration gives the principal control of the segregation of pupils of like destination or like program, thus avoiding overcrowding of certain sections, conflicts, and the general confusion that is so prevalent during the opening days of a high school. This is not the place for a detailed discussion of program making. High-school principals should read Mr. Richardson's monograph<sup>5</sup> dealing with that problem.

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<sup>5</sup> Myron W. Richardson, *Making a High-School Program*. School Efficiency Monographs, World Book Company, 1921.

Experience with division of a class into two sections reveals the fact that even greater advantages would be derived from a division into more sections, as would be possible in a larger high school. With a larger number of sections each of them would be more homogeneous in ability. A freshmen class divided into two sections still shows a wide range of ability in each section—too wide, in fact, for the most effective work.

Classification of high-school pupils on the basis of mental ability results, or should result, in certain advantages:

1. *It makes possible an adaptation of the technique of instruction to the needs of the group.* It makes possible such an adaptation, but it does not insure it. The tendency too often is to use exactly the same method for the different sections. Unfortunately, we do not yet know enough about differences between methods of instruction for, let us say, the upper tenth and the lower tenth. It is generally recognized that less capable pupils require much more detailed explanation than the more capable, and that the former require much more drill to make certain skills automatic than do the latter. It is not to be expected that the teacher's preparation or presentation would be the same for all sections. Classification alone will not bring the results desired; it is only a means to an end.

What progress of a class as a whole may we expect when each individual in a heterogeneous group is given the same task with the same period for its accomplishment? Measured results show that the ratio of the poorest to the best student in a class is often 1 to 8 when the task assigned is reproducing ideas gained from reading a paragraph. If, for example, a lesson of this sort were assigned with one hour for preparation for the best pupils, it would be reasonable to expect that it would require 8 hours for the poorest pupil to prepare the same lesson equally well. If, on the other hand, a lesson were assigned which the poorest could prepare in one hour, the best pupil could prepare the same lesson in less than 8 minutes.

With this wide range of ability it might be suggested that a lesson of such length should be assigned that the median pupil could prepare it in one hour. Preparation of this lesson suited to the median pupil would require four hours by the poorest pupil;



while the best pupil would prepare the same lesson equally well in less than half an hour.

To illustrate further the difficulties of group instruction with pupils that vary widely in ability, let us imagine the poorest pupil in the analogies test sitting in an algebra class beside the best pupil in the same test. The analogies is a test of speed in perceiving logical relations; it shows a significant positive correlation with performance in algebra, also with the teacher's estimate of general intelligence. In a class to which the author gave the analogies test as an individual test, the best pupil could perceive the relation and speak the missing word at the rate of one in each 3.5 seconds; the poorest pupil could perceive the same relations at the rate of one in each 27.4 seconds.<sup>6</sup> Let us designate the best pupil "B" and the poorest pupil "P." Let us suppose that in order to progress understandingly with the work in the recitation it would be necessary to perceive relations at the rate of one every 10 seconds. "B" would perceive relation No. 1 in 3.5 seconds and wait 6.5 seconds for relation No. 2, but "P," if he were not distracted by the appearance of relation No. 2 would require 27.4 seconds to perceive relation No. 1. By the time "P" has grasped relation No. 1, it is almost time for relation No. 4, but the perceiving of relation No. 4, let us assume, is dependent upon his having grasped relations No. 2 and 3. It is evident that the recitation would not continue long at this rate before "P" would be hopelessly lost; while "B" would be bored by the tedium of waiting for each succeeding relation almost twice as long as it took him to perceive the relation when it was presented. With the knowledge of the abilities of "B" and "P" which the analogies test affords, it would not take a wise man to predict that, if "P" were held to a standard adapted to "B," he would fail to gain credit in the course. If, on the other hand, the recitation progressed at a rate suited to "P," "B" would lose interest and the recitation would fall far short of calling forth the best that was in him. Who can estimate the deadening influence on "B" of four years of high-school work on

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<sup>6</sup> In giving the test, the pupil was allowed no more than 30 seconds for each analogy. If the correct answer was not given in 30 seconds, the time was recorded as 30 seconds. This average is therefore less than the actual time required to see the relation.



this level? What can we expect from "P," who must of necessity be completely "muddled" at the end of each recitation?

If "P" is to make normal progress, he must be given more time to see relations and to answer thought-questions. This is not advisable if "B" is to participate in the same recitation. It would, therefore, seem advisable to place "P" in a class of pupils who would profit by the long interval that must elapse between question and answer, and to place "B" in a class of pupils like himself mentally.

The writer is convinced that in classes as organized at present thought-questions are put at a rate too rapid for a large majority of the class. The rate in most classes is more nearly adapted to the best 10 pupils in 100. Anyone may be convinced of the truth of this statement by observing teachers of freshmen classes in the high school if he will take the trouble to measure with a stop-watch the interval of time allowed for answers to thought-questions. The median time required by freshmen to see the simple relations in the analogies test we employed was about 14 seconds. Most teachers, especially beginners, show considerable uneasiness, at least, if answers to thought-questions that involve the grasping of relations much more complex than those in the analogies test are not forthcoming within 10 seconds. If the answer is not given almost immediately, the teacher interrupts by meaningless remarks, by a needless repetition of the question, by passing the question on to some other pupil, or by answering the question herself. She can't endure the silence that must prevail while the pupil is thinking and organizing his material, and commonly feels that she must break the silence by making a remark of some kind, however useless and distracting it may be.

During the past year the author has had occasion to observe the work of over 100 practice teachers. There was no one fault more common than the one under discussion. It is due to the failure to recognize the fact that time is required to perceive thought-relations and that a large proportion of the time in the recitation must be allowed for the exercise of this important function. Fourteen seconds seems a long time to wait for a student to see relations as simple as those in the analogies test, in which the relation when

perceived is expressed by a single word and in the presence of one person. Many of the thought-questions put by teachers are much more complex than that and necessitate framing the answer in good connected English and giving it before thirty of his classmates. If the reader is a teacher, he can observe this fault by putting a thought-question to some member of his class and then measuring with a stop-watch the interval that elapses between the question and the expected answers. It is rare, indeed, that the teacher does not show considerable uneasiness before ten seconds have elapsed.

Miss Stevens<sup>7</sup> has attacked this problem from a different angle—the number of questions put during a recitation. In the light of the foregoing discussion it is clear why there are reasons for alarm when it is reported that recitations are frequent in which 200 or more questions are asked.

2. *Classification makes possible but does not insure an adaptation of materials of instruction to the needs of the group.* It is probably only a question of time until the makers of textbooks will recognize the wide range of ability among students and will make texts adapted to the different groups. It is possible now to select texts in general science of varying degrees of complexity. Some of these texts are well adapted to students in the lower third in ability, but are for most part a bore to the upper third who know most of the material contained in the texts before they enter the high school. The scientific interests of the superior pupils are likely to be deadened by spending thirty-six weeks largely in memorizing the words of that particular author.

The same criticism might be made of materials in English, agriculture, domestic science, American history, and beginning mathematics. Simplification of texts for students of mediocre or less ability is desirable and necessary, but not for those of superior ability. This should not be interpreted as a plea for textbooks that are obscure and complex, but rather a plea for materials that for most part are new to the superior pupil and sufficiently involved to challenge his ability.

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<sup>7</sup> Romiet Stevens, *The Question as a Measure of Efficiency in Instruction*. Teachers College, Columbia University, Contributions to Education, No. 48.

A more comprehensive treatment of materials rather than more rapid progress through the high school seems to me to be the better solution of the problem of the superior pupil. If this is to be the solution, a more intelligent selection of materials is imperative.

3. *Classification may make competition operative as an incentive.* The capable pupil may be freed from the boredom that ensues from the snail-like progress that is necessary if the slower student is to profit by the instruction. Competition may become for him an incentive to real work. The less capable student, when segregated, experiences the thrill that comes from being first. "Better be first in a little Iberian village than second in Rome." In a fat man's race the participants manifest considerable enthusiasm and interest, which is likely to be lacking if an expert track man is entered. Competition between the fat man and the track man does not operate as an incentive. It is evident that the fat man suffers humiliation and embarrassment and that the track man, if he is a good sportsman, misses the thrill that comes from the defeat of a worthy adversary.

It is not uncommon to hear teachers, principals, and superintendents who have had no experience in working with pupils classified on the basis of ability, object to such classification on the ground that the students in the lower sections would become discouraged and would make no effort when deprived of the stimulus of the superior pupil, but I have never heard this objection raised by teachers and administrators who have actually classified pupils on the basis of ability. Instead of being discouraged, the less capable pupils are encouraged to compete when they realize there is a chance for them to do as well as their neighbors. It is true that the recitation does not move so rapidly, since it is impossible, when the recitation lags, to 'pass on' the questions to the superior pupil, as is so often done when the superior pupil is present. Such a procedure does keep something happening but it does not contribute much to the understanding or progress of the inferior pupil. The inferior pupils in a mixed class soon learn that the better pupils carry the load of the recitation and to avoid embarrassment the inferior pupils are satisfied to let them do it.

It should be emphasized once more that the classification of pupils on the basis of mental ability does not solve all of the problems incident to group instruction. Sections of pupils that are the same in mental ability will contain pupils that vary in chronological age, physiological age, previous training, temperament, conduct, special abilities, social and economic status, and moral standards. The members of any class, whether it is or is not made up of students of equal mental ability, will vary in these characteristics, but members of a class of equal mental ability will vary less in them than will those of a class of markedly unequal mental ability. For example, the section of pupils of superior mental ability would be more homogeneous as to chronological age than an unselected class, since the former would contain a majority of younger pupils. The latter would contain most of the over-age pupils. These classes would therefore be also more homogeneous as to physiological age than would an unselected class. The section of superior pupils would contain more pupils with good previous training, better dispositions, better standards of conduct, better opportunities socially and economically, than would the class of inferior pupils.

While classification on the basis of mental ability does not insure uniformity in all of these characteristics, it is evident that the variation would be very much reduced.

In some localities administrators will encounter objections on the part of parents to mental testing and to classification on the basis of the testing, just as they encountered objections to physical examination a few years ago. These objections must be met tactfully by educating the public to the advantages to be derived from a testing program. Nothing is to be gained in the beginning by emphasizing in the minds of the children the significance of the classification. The wise thing to do is to assign them without comment to the section to which they belong. Teachers especially should avoid comparisons of progress, industry, etc., before the pupils.

#### MENTAL TESTS AND SCHOOL MARKS

In discussing the correlation between mental tests and school marks it is necessary to consider the reliability of both tests and



school marks. One could not claim that the tests are an exact and reliable measure of general intelligence even if psychologists could agree on what general intelligence<sup>8</sup> is. The tests are probably a more reliable indication of what a pupil's achievement in school *should* be than are his marks an indication of what his achievement has been. Higher correlations between mental tests and school marks than are now obtained can not be expected until marks are based more exclusively on *achievement*. Terman has pointed out the danger of grossly perverting the test as a measure of general intelligence by modifying the test to increase its accuracy as a prediction of school marks. To quote Terman:<sup>9</sup> "If we wished to devise a test which would give the most accurate possible prediction of the class marks a given group of college students would receive, we ought to include in it measures of personal beauty, voice quality, bashfulness, willingness to cultivate the good graces of the instructor, etc."

Teachers and administrative officers can increase the value of mental tests as an instrument for diagnosis by making school marks a more accurate measure of actual achievement. It is quite natural for a teacher to let the mark indicate in part a pupil's industry, cooperation, courtesy, persistence, honesty, reliability, punctuality, and disposition; but when achievement and all of these other items are indicated by a single mark, it is very difficult indeed to ascertain to what degree it is a measure of achievement. This concrete case will illustrate: A parent who was accustomed to permit his son, a seventh-grade pupil, to assist him in some simple arithmetical calculations observed that he was slow and inaccurate in his calculations; he observed also that his marks in arithmetic were all above 90. The father, anxious to check up his son's school marks in arithmetic, applied the Courtis standard tests in arithmetic and learned that his son's achievement was very poor. In addition, for example, he was about a grade and one half below the standard for his grade. In consultation with his son's teacher concerning the inconsistency of the mark in arithmetic the teacher admitted that

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<sup>8</sup> "Intelligence and its measurement: a symposium." *Jour. of Educ. Psychology*. 12: March and April, 1921.

<sup>9</sup> *Ibid.*



the son was rather poor in arithmetic, but pointed out that he was a *good* boy, courteous, cooperative, and reliable. The father thought no less of his son because he possessed these desirable virtues, but he did think less of his son's marks as a measure of his achievement in arithmetic.

No one would deny that these items which the teacher mentioned and others are important and that much would be gained by constructing a report card that provided for a rating of the pupil on these items separately, reserving the mark that is written after each school subject for the measure of achievement in that subject. A pupil may be courteous, honest, reliable, industrious, attentive, and persistent and yet make a very poor mark in algebra. Both mental tests and school marks will be more meaningful with such a differentiated rating. The parent would then know that the achievement in algebra was low and that it was not due to a lack of industry, cooperation, etc.

The testing movement and the system of reporting by the public schools would be benefited greatly by the formulation of some standard uniform marking system. When such a system is formulated and certain symbols defined and applied to achievement and other items separately, we may expect a higher correlation between mental tests and school marks, and have in addition a language of marks that teachers, principals, superintendents, and parents can use and understand.

The standard achievement tests involving reasoning furnish a more objective criterion for checking the mental tests as an instrument for prediction. They furnish an illustration of a rating of achievement alone. A pupil's standing on a standard achievement test is not influenced by the numerous personal traits that color the teacher's mark.

The diagram reproduced as Fig. 10 shows clearly that even when emphasis is placed upon marking on achievement alone, as is done in the University High School, it is not always the pupil of low mental ability that fails; it will be noted, however, in comparing the marks of the lowest quartile group with the highest quartile group, that the former has about eleven times as many F's as the latter. About one fourth of the pupils in the highest quar-

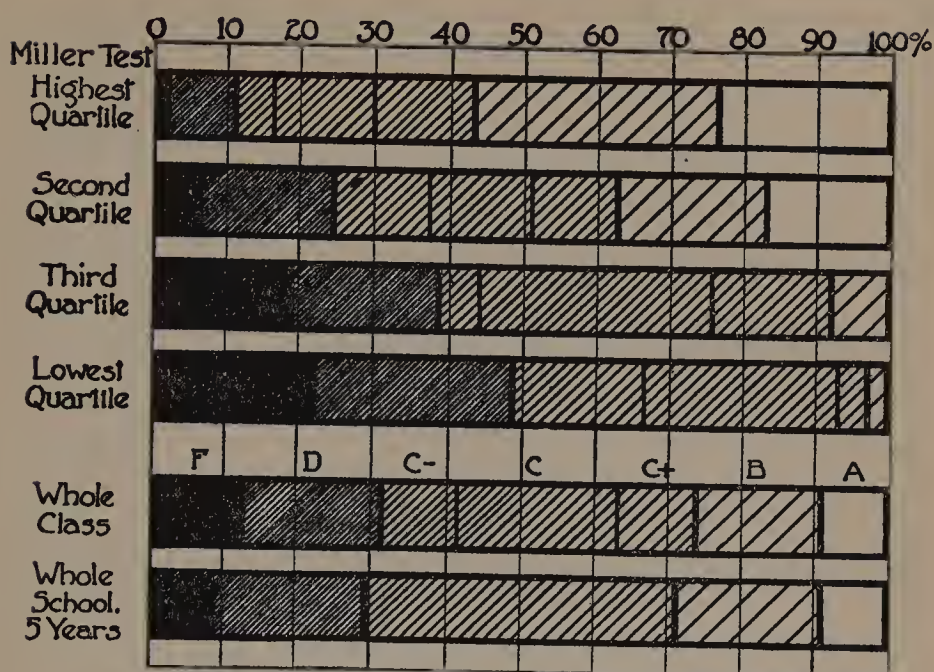


FIG. 10

Diagram showing the relation between the standings in the Miller Mental Ability Test and the average school marks (excluding gymnasium marks) of 55 freshmen University of the Minnesota High School, 1920-21.

tile received "A," while none in the lowest quartile received "A." The diagram shows clearly that mental ability as measured by the Miller Mental Ability Test is an important factor in determining the marks of high-school freshmen. The coefficient of correlation (Pearson) is  $+.522$ .

Administrators will find a graphic representation that shows each pupil's school standing in relation to his mental ability more useful for diagnostic purposes. The correlation graph, Fig. 11, furnishes this information in a form that is easily interpreted. Both the test scores and the school marks were converted into percentile ranks by the method already explained. The marks were weighted as follows: A, 100; B, 93; C+, 81; C, 69; C-, 50; D, 31; F, 7.

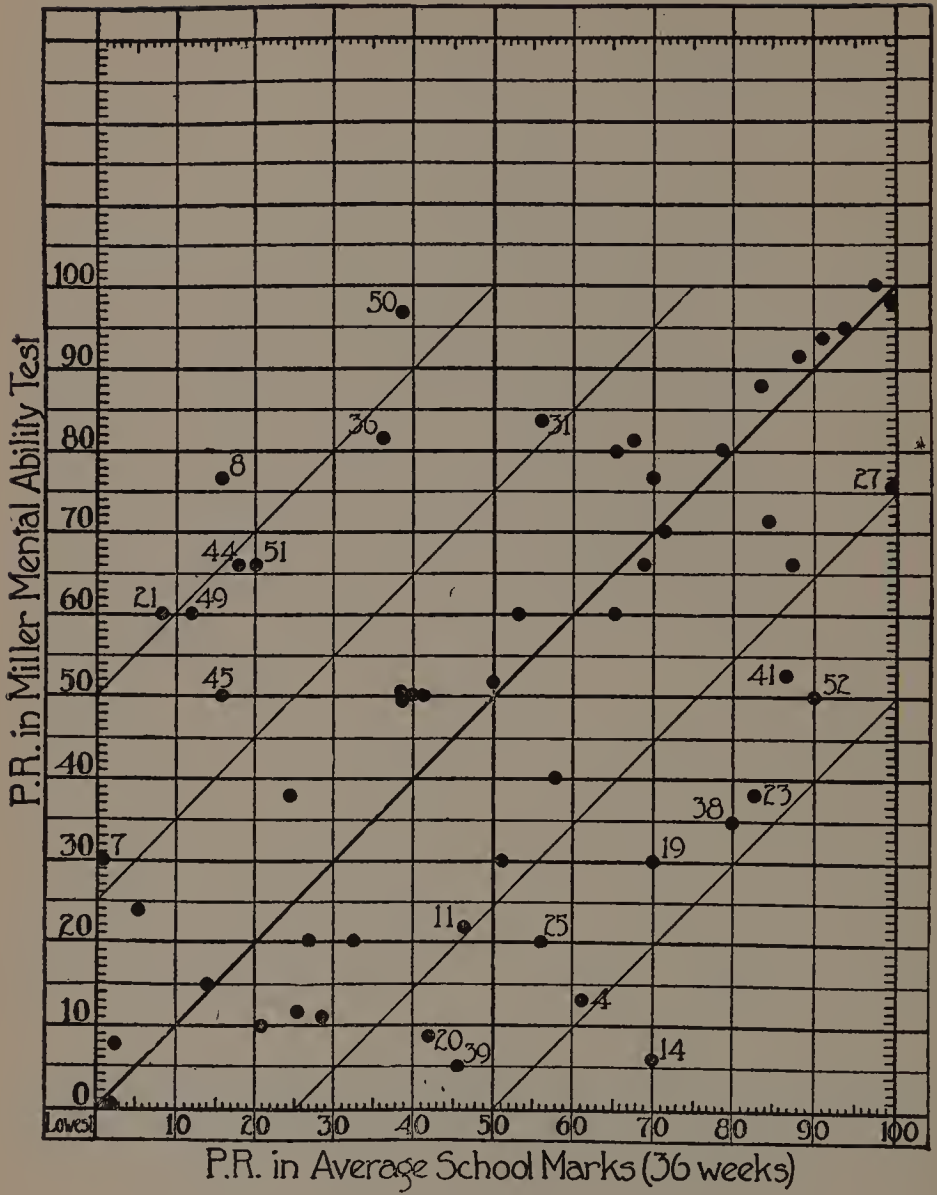


FIG. 11

If each pupil held the same percentile rank in school marks as in the mental test, the dots in the correlation graph, Fig. 11, would be on the heavy diagonal. Pupils whose percentile ranks in school marks and in the mental test differ by less than 25 points are be-

tween the diagonals originating at 25 on the horizontal and on the vertical scale. Pupils whose percentile ranks in mental test and school marks differ from 25 to 49 points are found between the diagonals originating at 25 and 50. Pupils beyond the diagonals originating at 50 differ in their percentile ranks in school marks and mental tests by more than 50 points.

Pupils at the right of the heavy diagonal hold a higher percentile rank in school marks than in the mental test.

Pupils at the left of the heavy diagonal hold a higher percentile rank in the mental test than in school marks.

Let us observe the facts concerning the relation between the test results and the school marks revealed in Fig. 11. It is obvious that the widest possible difference in percentile ranks in the two series would be 100 points, as would be the case with a pupil whose percentile rank in the test was 100 and whose percentile rank in school marks was 0. The widest difference found is 64 points (pupil number 14 on the graph). Four pupils, numbers 8, 21, 50 and 14, show a difference between percentile rank in the test and school marks of more than 50 points. Seventeen pupils, numbers 51, 44, 36, 31, 45, 49, 27, 41, 52, 23, 38, 18, 25, 39, 4, 7, and 20, differ in percentile ranks in test and school marks between 25 and 50 points. The remaining 34 pupils differ by less than 25 points in the two percentile ranks. The Pearson coefficient is  $+ .522$ .

There are several factors that keep this correlation from being higher:

1. A test that can be given in 30 minutes and that involves only 19 minutes spent in actual work is not infallible as a measure of mental ability.

2. School marks are not, as every one knows, a measure of all a pupil is capable of doing.

3. School marks do not measure achievement alone. They are colored by courtesy, cooperation, industry, methods of work, previous training, etc., which the test does not measure.

It is interesting to study specific cases to ascertain the reason for the wider differences between percentile rank in the test and percentile rank in school marks. What are the chances that addi-



tional tests would show that this single test was unreliable as a measure of a pupil's ability?

In the University High School where the author was principal, the entering class (1920) of 55 members were given the Miller Mental Ability Test; Haggerty's Delta 2; Terman's Group Test of Mental Ability, Form A; Army Alpha, Form 8; Trabue's Mentimeters, and the Otis Test, in the order named. The first three tests were given on the same day, September 27, except for one half of the group who took the Miller test in July. The Army Alpha and the Trabue Mentimeters were given in October about two weeks apart. The Otis Test and the Stanford Revision of the Binet-Simon Tests were given in March, 1921.

The correlation (Pearson) between the Miller Test and the average of the first five tests given is  $+.903$ .

TABLE I.—55 NINTH-GRADE PUPILS, UNIVERSITY OF MINNESOTA HIGH SCHOOL  
(All correlations in the table are positive)

	Delta 2	Terman Form A	Alpha Form 8	Mentimeter	Av. 1st 3 Tests	Av. 5 Tests	Grammar*	School Marks	Otis
Miller	.784	.747	.76	.768	.891	.903	.392	.563	.734
Delta 2		.817	.778	.685	.904	.884	.50	.503	.715
Terman Form A			.823	.714	.931	.929	.534	.586	.741
Alpha, Form 8				.712	.842	.914	.471	.564	.716
Mentimeter					.779	.842	.285	.409	.654
Av. 1st 3 Tests						.975	.527	.562	
Av. Five tests above							.453	.60	.841

\* An unpublished test of grammar and correct usage arranged by Miss Rewey Belle Inglis, University High School, Minneapolis.

In how many of the 21 cases of wide difference between tests and school marks did further examination show that the first test given was unreliable?

The following are the four pupils whose percentile ranks in the Miller test and in school marks differed by more than 50 points.



Pupil	P. R. in Miller Test	P. R. in Av. of 5 tests	P. R. in School Marks
8	77	82	16
21	60	20	8
14	6	10	70
50	97	100	39

It will be observed that further examination of these pupils with four other tests confirmed their percentile ranks in the Miller Test in 3 out of 4 cases. It is evident that number 21 is not rated properly by the Miller Test. The average of the five tests gives her a percentile rank of 20. One of two explanations is possible: (a) previous information about the test, or (b) "copying" when the test was given. The former explanation seems the more plausible, since every precaution was taken to prevent the latter. The school marks and the average of five tests place her in the lowest fifth.

It is quite evident that we are not paying dividends on No. 8 and No. 50. Both boys are in the upper 25 percent in ability, but they are distinctly below average in achievement. What is the reason? No completely satisfactory answer can be given at this time, but the following facts make clear the nature of the discrepancy.

Pupil No. 8 made scores on the tests as follows:

Test	Score	P. R.
Miller Mental Ability Test.....	74	77
Haggerty's Delta 2.....	150	88
Terman Test, Form A.....	156	80
Army Alpha, Form 8.....	133	70
Trabue's Mentimeters .....	121	82
Otis Test .....	166	65
School Marks (36 weeks).....	33.5	16

His age is 14 years 2 months. He is very much undersize, undernourished, restless, timid, and somewhat indifferent. His conduct is all that could be desired. He comes from a good home. His father says his son has always been in good health. He has poor study habits. His school work has not improved; P. R. in school marks for first quarter (12 weeks) was 21, second quarter 12, for the year, 16. He presents a clear-cut problem which has not been solved.

Pupil No. 50 made scores and obtained percentile ranks as follows:

Test	Score	P. R.
Miller Mental Ability Test.....	88	97
Haggerty's Delta 2 .....	152	92
Terman Test, Form A.....	173	95
Army Alpha, Form 8.....	166	100
Trabue Mentimeters .....	130	100
Otis Test .....	191	98
School Marks (36 weeks).....	47.9	39

Pupil 50 is 15 years, 2 months of age. He is very much over weight and a "good feeder." He is well behaved, good natured, easily embarrassed, very reticent, and lazy. He is not regular and persistent in his efforts. He has on certain occasions written almost perfect examination papers. He does not conform to class requirements that are necessary to make good marks. He opened the first quarter with a P. R. in school marks of 70 and averaged 39th P. R. for the year. His father is a successful business man. It is clearly evident the school is not getting out of the boy all that he is capable of doing. Why?

Pupil No. 14 shows results quite contrasted to those of No. 8 and No. 50. His record is:

Test	Score	P. R.
Miller Mental Ability Test.....	43	6
Haggerty's Delta 2 .....	117	15
Terman Test, Form A.....	99	18
Army Alpha, Form 8.....	101	13
Trabue Mentimeters .....	91	5
Otis Test .....	124	8
School Marks (36 weeks).....	74.4	70

This boy's age is 13 years, 9 months. He is courteous, industrious, co-operative, and very loquacious. He takes pride in his school work and tries hard to please. He has several interests outside of his school work. He is a slow reader. He is popular with his teachers and classmates, especially with the girls. His home influences are excellent; his father is a professional man. This boy is not a problem for the school. He is, however, a very interesting example of a boy who can make good school marks even though his mental test scores are low.

Below are the results of further examination of the seventeen students whose percentile rank in the Miller Test differed from the percentile rank in school marks from 25 to 50 points.

Pupil	P. R. in Miller Test	P. R. in Av. of Five Tests	P. R. in School Marks
31	84	92	56
36	82	76	36
44	66	58	18

Pupil	P. R. in Miller Test	P. R. in Av. of Five Tests	P. R. in School Marks
45	50	52	16
7	30	30	0
49	60	65	12
27	75	78	100
41	53	72	87
20	9	18	42
4	13	30	61
25	20	42	56
38	35	50	80
23	38	27	83
52	50	47	90
19	30	40	70
39	5	2	46
51	66	70	20

It will be observed that the percentile ranks of the students in the average of the five tests confirm the ratings in the Miller test except in three cases, Nos. 4, 25, and 38, to whom further examination gave percentile ranks from 15 to 27 higher. In all three cases the higher rating is confirmed by the percentile rank in school marks.

In the other fourteen cases we have no reason to believe that the percentile ranks in the tests would be materially modified by giving more than the five tests. The reasons for the difference between percentile rank in tests and in school marks must be attributed to something other than faulty examinations.

Pupil No. 49 is a type well known to most educators:

Test	Score	P. R.
Miller Mental Ability Test.....	68	60
Haggerty's Delta 2 .....	143	73
Terman Test, Form A.....	145	65
Army Alpha, Form 8.....	130	64
Trabue Mentimeters .....	110	49
Otis Test .....	166	65
School Marks (36 weeks).....	28.2	12

He is 14 years old, normal physically. He is a likable boy, with little pride or ambition. He is capable of 'spurts,' but is lacking in sustained effort. Two of his older brothers, more capable than he, have exhibited the same traits in a more marked form. The family is in very good circumstances and both parents are much concerned about the education of their children. During the year the boy made little or no permanent improvement. His next older brother, a sophomore, made no noticeable change for the better during the two years.

Pupil No. 51 is a girl 14 years of age, very much overweight.

Test	Score	P. R.
Miller Mental Ability Test.....	71	66
Haggerty's Delta 2 .....	142	70
Terman Test, Form A.....	135	54
Army Alpha, Form 8.....	137	81
Trabue Mentimeters .....	124	92
Otis Test .....	170	73
School Marks .....	36.9	20

In early childhood she had spinal trouble which made her an invalid for more than half of her life. Her difficulty seems to be a lack of independence and initiative, due very likely to her experiences as an invalid and an only child. She does what she is told to do and waits for orders. She is gaining in independence. She made considerable progress during the year and will probably continue to improve.

It will be remembered from the explanation of the correlation graph given earlier that the upper left-hand quarter contains the pupils who are in the upper half in the test but in the lower half in school marks, while the lower right-hand quarter contains those who are in the lower half in the tests but in the upper half in school marks. It is interesting to note in this connection that all except one of the seven pupils in the upper left-hand quarter of the graph, Fig. 11, are boys, while all except two of the eight pupils in the lower right-hand quarter are girls.

Furthermore, pupils in the lower right-hand quarter are conscientious, industrious "lesson getters" under parental supervision; but those in the upper left-hand corner cannot be characterized in this manner.

The interesting and important question is whether the pupils in the upper left-hand quarter can be prevailed upon to assume an attitude similar to those in the lower right quarter. When they assume such an attitude, the place they have occupied will be vacant for they will have moved to the upper *right-hand* quarter where they belong.

When the upper left-hand quarter of the graph is densely populated, your school is not paying dividends on the gray matter at its disposal. When you find this condition existing, don't decide too quickly that mental tests are not a measure of mental ability.

Pupils in the lower right-hand quarter, Fig. 11, are in all cases

industrious, courteous, cooperative, dependable, and conscientious. They or their parents, and sometimes both, take pride in school marks and work diligently to get them. They are all good 'lesson getters.' They conform. Without exception they are students with pleasing personalities. Teachers naturally dislike to have them receive low marks. The mental tests don't register these excellent qualities, but the school marks do register them.

Pupils in the upper left-hand quarter are characterized by a different set of adjectives. They are not regular in their work habits. They work by 'spurts' or not at all. They take little pride in their school work, and marks do not appeal to them. They are non-conformists in classroom requirements and are therefore not good 'lesson getters.' Mental tests do not register or measure a pupil's attitude toward a piece of work that requires sustained effort for several hours daily for 36 weeks; school marks are affected materially by such an attitude.

It is rather discouraging to note that very little change, if any, was made in pupils Nos. 49, 50, and 8, who were described above. What change, if any, in the attitude of pupils of this type can be made during four years? Unfortunately, we do not know enough about methods of handling such individuals. A careful record of such cases, including reports of methods of treatment, especially of those methods that bring results in the way of better achievement, would be a great value to all teachers and administrators. A 'case book' including these *types*, for certainly each case is not unique, ought to contribute a great deal to this problem. The problem is an obstinate one. Is it possible that restrictions laid down by physical and social inheritance make it impossible to make desirable changes? Does any one know? What scientific data are available to establish what is possible? We do know that there is a tendency for pupils to retain similar quartile standing thruout the elementary school, the high school, and the college. How many pupils of the types represented by Nos. 8, 49, 50 and 51, or what proportion of them, never do a quality of work in keeping with their mental ability? Can this proportion be reduced, and if so, by what methods?



In the opinion of the author one of the chief benefits to be derived from mental testing is the direction of the attention of teachers and principals to individual pupils of the 'could-if-they-would' type. This benefit can be realized whether or not the pupils are classified; however, classification on the basis of mental ability will place the pupils in an environment better adapted to their needs and capacities.

In this discussion emphasis has purposely been placed on those cases with which the University High School has failed, in order to set forth more clearly the problem involved.

## CHAPTER VIII

### SOME ADMINISTRATIVE USES OF INTELLIGENCE TESTS IN THE NORMAL SCHOOL

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In the very brief time available for preparing this report it was impossible to attempt any general survey of the administrative uses of tests in the normal schools of the country. All that seemed feasible was to make a report of three years' experience with the Thorndike Intelligence Examination for High-School Graduates in the normal school with which the writer is connected, and to supplement this report by such data as could quickly be gathered from some normal schools that the writer knew had given intelligence tests.

#### I. INTELLIGENCE TESTS AT TRENTON

The New Jersey State Normal School at Trenton has been using the Thorndike Intelligence Examination since the fall of 1919. During this time investigation has been directed chiefly toward the discovery and testing of the possible administrative uses of the test. It was hoped especially that such a test might ultimately provide a sound basis for sectioning students according to intellectual ability, and furnish a check on the teacher's judgment of ability, help to identify early the student who lacked the ability to complete a normal-school course and the student who was able but who would not work.

The first test was given in the fall of 1919 to the entering (junior) class. An attempt had already been made to group this class according to scholastic ability. Since no other measure was as yet available, high-school marks had been made the basis of sectioning. At the end of the first semester, therefore, three independent means of ranking these juniors were available: first, the high-school marks; second, the test scores achieved; and third, the

teachers' first semester marks, since the faculty had been told nothing, until after these marks had been reported, either as to the order in which the sections were ranked or as to the test scores achieved by the students. It was desirable to know the extent of agreement among these three independent measures.

The first question considered was, how far the sectioning according to scholastic ability would have been altered if intelligence scores rather than high-school marks had been the basis of grouping. To furnish an answer to this question each section was charted in such a way as to show the number of individuals whom the intelligence scores would displace from the sections to which they were assigned on the basis of high-school marks, and the degree of such displacement in terms of sections. Only general course students could be included in this study, since students taking special courses—Domestic Science, Kindergarten-Primary, Music, etc.—had been sectioned according to the special interests and not according to the high-school marks. A commuter's division, which was not grouped on the basis of marks, also had to be omitted. These omissions left four sections ranked according to high-school marks. In the following tabulation these sections will be designated A, B, C, and D; A is the highest ranking section and D the lowest ranking section. Table I shows the extent to which this sectioning would have been altered, had it been determined by the intelligence scores.

Table I shows that 36 of the 95 students were not displaced from their sections by the test. That is to say, in 38 percent of

TABLE I.—DISPLACEMENT OF STUDENTS BY THORNDIKE INTELLIGENCE EXAMINATION SCORES FROM SECTIONS TO WHICH THEY WERE ASSIGNED ON THE BASIS OF HIGH-SCHOOL MARKS

Amount and Direction of Displacement	Section A	Section B	Section C	Section D	Totals
+ 3	0	0	0	3	3
+ 2	0	0	6	6	12
+ 1	0	8	1	8	17
0	14	7	9	6	36
— 1	6	5	8	0	19
— 2	2	3	0	0	5
— 3	3	0	0	0	3
Totals	25	23	24	23	95

the cases considered, there was perfect agreement between the high-school marks and the intelligence test in sectioning students according to intellectual ability. If we add to the 36 individuals with zero displacement the 36 whom the test would have pushed up or down but one section, we find that in approximately 76 percent of the cases the two methods of sectioning do not disagree by more than one section. Six individuals, or six percent of the group, however, would have been exactly reversed as to section had they been assigned on the basis of their test scores. Three students in Section A, the highest ranking section, would have been in Section D, the lowest ranking section, and three who were in Section D would have been in Section A.

Since the purpose of the sectioning is to group together those students who can progress in school work at approximately the same rate, it was important to know whether the high-school marks or the tests were more accurate in placing together students who succeeded in the accomplishment of normal-school work to approximately the same degree. The second question considered, therefore, was the sectional displacement which would occur should the students be regrouped on the basis of the teachers' marks for the first semester's work in the normal school. For the purpose of answering this question the groups sectioned according to high-school marks were recharted so as to show the displacement which teachers' marks would occasion. Table II, which presents the results,

TABLE II.—DISPLACEMENT OF STUDENTS BY FIRST-SEMESTER NORMAL-SCHOOL MARKS, FROM SECTIONS TO WHICH THEY WERE ASSIGNED ON THE BASIS OF HIGH-SCHOOL MARKS

Amount and Direction of Displacement	Section A	Section B	Section C	Section D	Totals
+ 3	0	0	0	3	3
+ 2	0	0	3	7	10
+ 1	0	7	7	3	17
0	11	9	7	10	37
- 1	6	5	7	0	18
- 2	5	2	0	0	7
- 3	3	0	0	0	3
Totals	25	23	24	23	95

reveals the fact that 39 percent of the 95 students are not displaced by the first-semester normal-school marks from the sections to which they were assigned on the basis of high-school marks, that 75 percent are not displaced by more than one section, and that 6 percent are displaced from the lowest to the highest, or from the highest to the lowest section. These percentages are in striking agreement with the percentages representing the correspondence between high-school marks and the Thorndike Intelligence Examination as bases of sectioning. Analysis of the original chart, however, showed that the two measures, marks and tests, did not agree quite so perfectly as to the individuals displaced. It did show, however, that there was less discrepancy between the test scores and the normal-school marks than between the high-school marks and either test scores or normal-school marks.

The results secured from this first test convinced the faculty that the test gave promise of serving valuable administrative ends. All conclusions formed, however, were tentative, and needed to be verified by further study. It was seen, for example, that if the intelligence test could locate those individuals who had not the ability to complete the normal-school course, many students might, through a three-hour examination, be spared the time, expense, and humiliation of spending from half a year to a year and a half in the normal school only to discover finally that they could not be graduated. To locate the limits within which students must test in order to have a reasonable hope of graduation would require careful study, for several years, of the scholastic careers of students in relation to their test scores.

As a direct measure of the probable relationship between the first-semester normal-school marks and the Thorndike test scores, the coefficient of correlation between the two measures was computed.<sup>1</sup> The correlation calculated by the 'foot-rule' formula, was .56, P. E. .03.

The correlation between the Thorndike Intelligence Examination and first-semester college marks for 500 freshmen in Brown

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<sup>1</sup> The Trenton Normal School uses a five-point scale of marking: A, B, C, D, F. To obtain a student's scholarship mark for correlation, the marks assigned him were translated into arbitrary numerical equivalents (A, 7; B, 5; C, 4; D, 3; F, 1) and averaged.



University, Columbia College, and Rutgers College is reported by Thorndike as about .55. Thorndike says of this correlation: "When allowance is made for 'attenuation' of the correlation by the lack of precision in a rating on only one half year's work, this will rise to .60 or more. . . . Since college achievement is in part due to factors of health, ambition, economic conditions and the like, the correlation between the Thorndike score and the intellectual factors of college achievement alone may be put somewhere between .85 and .95 for a group of high-school graduates in general." There seems no reason to doubt that these facts would hold for normal-school students as well as for college students so far as the academic side of the normal-school course is concerned.

These conclusions were borne in mind in the study of individual cases which followed. A comparison of the score achieved by the student with his actual class accomplishment revealed in certain cases the fact that he was not working up to his capacity. The causes for the discrepancy were then sought. In some cases these were found to be physical difficulties; in others, poor health habits, timidity, wrong attitude, poor habits of work, outside distractions or laziness. The test gave the teacher confidence that, in applying the spurs to the student with a high test score and poor scholarship, he was not demanding the impossible. In the case of students with low scores and records that were low, but not low enough for failure, patience was the only reasonable course, since they were doing as well as their endowment permitted them to do. For the remainder of the year the intelligence records were consulted whenever a teacher was in doubt as to whether a student was measuring up to the scholastic standard of which he was capable. While no student was dropped from the school because of a low test score, it is safe to say that since the first use of the test no student has been dropped from the school for poor work, without consideration of his rating on the intelligence test.

In the fall of 1920, this class was retested—in part, to measure the reliability of a score based on a single performance, and in part to make clear the meaning of the test by furnishing an answer to the following question which had arisen: "Will a re-test measure a student's improvement in ability from a year's work

in the normal school?" Unfortunately, one section of the class, the strongest section, did not take the re-test because its members were doing their practice teaching. For those students (169 in number) who took both tests, the coefficient of correlation between the scores they attained as juniors and the scores they attained as seniors was .86, P. E. .01 (Pearson formula); that is, the agreement between the two tests was close, but as might be expected, not perfect. Differences between the two were, in general, small. In a few cases, however, they were large enough to emphasize the danger of taking any decisive action, such as the exclusion of a student from school, on the basis of a single test, unless the test was supplemented by other measures of his ability.

There was no consistent tendency for the re-test scores to be better than the original scores. About 60 percent, however, made somewhat better scores on the re-test. Since the differences were, in general, very small, the slightly greater tendency to do better on the second test was probably due, in part at least, to the fact that the situation had ceased to be entirely new. Certainly the re-test showed nothing to indicate that it could serve to test improvement gained from the year's work in the normal school.

Study of the results of the tests given to the junior classes entering in 1920 and 1921 has served to confirm the judgment that the Thorndike Intelligence Test scores give a reasonably reliable basis for predicting a student's ability to meet the scholastic demands of the normal-school course. In 1920 the instructors were asked to hand to the Psychology Department a list of the poorest tenth of their juniors. This list was prepared before the results of the intelligence tests were reported to the faculty. Upon tabulating the returns it was found that the five students who scored below thirty had been reported as unsatisfactory by a majority of the teachers to whom they recited and that a majority of those who scored below 40 had been reported as unsatisfactory by two or more of their instructors. In December, 1921, that is, a year and a half after they entered, a tabulation was made showing the status of these students who tested below 40, with the following result:

STUDENTS WHO ENTERED SEPTEMBER, 1920, AND WHO TESTED BELOW FORTY IN  
THE THORNDIKE INTELLIGENCE EXAMINATION

<i>Score</i>	<i>Status, December, 1921</i>
21.4	Withdrew because of unsatisfactory work
22.3	Withdrew because of unsatisfactory work
24.0	Withdrew because of unsatisfactory work
25.1	Withdrew because of unsatisfactory work
30.0	Withdrew because of unsatisfactory work
30.2	Withdrew because of mother's death
30.5	Advised to withdraw
30.5	Withdrew
33.2	Low, but passing record; hard worker
34.2	(Domestic Science) Marks vary from A to D
34.4	Must extend course one-half year
34.6	Withdrew
34.7	Must extend course
34.7	Variable record
35.0	Withdrew
36.8	Must extend time
37.0	Withdrew
37.6	Must extend course
37.6	Must extend course
38.4	Withdrew
38.6	Withdrew
38.8	Withdrew
38.8	(Domestic Science) Marks from A to D
38.9	Must extend course
39.4	Poor record. Many F's and D's
39.5	Must extend course
39.9	Must extend course

The majority of withdrawals occurred as the result of advice or pressure from the school, or as a result of the student's own realization that he lacked the ability to meet the school's requirements.

On the basis of such records as these, the following tentative conclusions seem justified:<sup>2</sup>

First, it is highly probable that any high-school graduate testing below thirty on the Thorndike scale lacks the intellectual ability necessary to complete the course in this Normal School. The available data include the scores of the class of 1920,<sup>3</sup> the class of 1921 and the class of 1922. No student with a score of thirty or below has been graduated, and, as indicated in the foregoing tabulation,

<sup>2</sup> Any conclusions as to the value of intelligence tests are based on the assumption that the tests were carefully given and scored under the direction of a competent person familiar with the requirements for scientific testing.

<sup>3</sup> Tested in June of the senior year. The tests were scored by Mr. F. L. Whitney of the University of Minnesota, who is using the results in a study of intelligence tests in relation to success in teaching.

all students in the class of 1922 testing thirty or below, have already (December, 1921) been eliminated.

Second, a majority of the pupils testing between thirty and forty will probably not complete the course, or will do so only by remaining in the normal school for an extra half year or longer. Whether or not the school is justified in retaining these students who can complete the course only by taking longer than the allotted time, can only be determined by watching the careers of this experimental group.

Study of the distribution of test scores for all classes examined revealed a number of interesting facts. Table III shows the distribution of scores attained by four successive June classes, and by three February classes. The year designated is the year of graduation. The February classes were tested the fall after they entered. The class of 1920 was tested a few weeks before graduation. The other three classes were tested at the beginning of their junior year.

The distribution of scores in Table III reveals the intelligence level of students entering the normal school and makes possible a comparison between the intellectual caliber of these students and of students entering the freshman class in certain colleges. The scores attained by the classes which entered the Trenton Normal School in September 1919, September 1920, and September 1921, were compared with the scores attained by two groups of women college students; (1) "Freshmen, Liberal Arts College, Eastern State," and (2) "Freshmen, Home Economics, Western State." The distribution of scores for these women is given by Thorndike in his summary on the "Significance of Scores in the Thorndike Intelligence Examination for High School Graduates." The comparison shows that the Liberal Arts college draws a much larger proportion of high-ranking students than does the normal school. Only 15 percent of the normal-school students reach or surpass the median for this group of college women. The normal school suffers little, if any, however, by comparison with the Home Economics women. Table IV shows comparatively the distribution of scores for these three groups. The figures are only approximate.



TABLE III.—THORNDIKE INTELLIGENCE EXAMINATION FOR HIGH-SCHOOL GRADUATES  
NEW JERSEY STATE NORMAL SCHOOL AT TRENTON  
Comparative Distribution of Scores for Four Successive Classes

Range of Scores	Percentage of Class Achieving Specified Scores						
	Class of 1920	Class of 1921	Class of 1922	Class of 1923	1921	February Classes 1922	1923
20.1-30	0.	0.5	1.8	0.6	0.	0.	0.
30.1-40	3.	1.5	8.5	6.9	0.	0.	0.
40.1-50	16.	12.7	21.4	19.2	7.1	36.8	25.0
50.1-60	21.	23.4	29.1	31.5	21.4	10.5	25.0
60.1-70	31.	28.3	23.7	27.4	42.8	31.6	25.0
70.1-80	17.	20.5	11.9	11.0	7.1	10.5	16.6
80.1-90	10.	9.6	1.1	3.2	21.4	10.5	8.4
90.1-100	2.	3.9	0.0	0.0	0.	0.	0.
100.1-110	0.	0.5	0.0	0.0	0.	0.	0.
Median	62.6	64.1	55.9	57.8	64.4	60.8	59.8
Lowest Score	34.2	24.0	21.4	27.1	48.5	41.2	45.9
Highest Score	97.9	100.3	83.0	84.9	87.9	81.8	83.9
Range of middle 50 percent	55.3-72.5	56.0-74.2	47.7-64.4	49.5-65.	53.3-78.3	46.2-71.6	50. -67.4
Number	100	207	269	317	14	19	12
Test Forms Used	Part I, E and F Part II, C Part III, C	Part I, C and D Part II, B Part III, B	Part I, I and M Part II, D Part III, D	Part I, I and M Part II, D Part III, D	Part I, C and D Part II, B Part III, B	Part I, I and M Part II, D Part III, D	Part I, I and M Part II, D Part III, D



TABLE IV.—PERCENTAGE OF FIRST-YEAR NORMAL-SCHOOL STUDENTS AND COLLEGE FRESHMEN ATTAINING CERTAIN SCORES ON THE THORNDIKE INTELLIGENCE EXAMINATION

Score	Freshmen Liberal Arts Eastern State	Freshmen Home Economics	First-Year Trenton Normal (3 classes)
100	0	0	0.2
90	8	1	1.2
80	28	7	5.5
70	58	24	19.3
60	86	45	45.7
50	94	77	74.3
40	98	96	92.6
30	100	100	98.6
20	—	—	100.0
Approximate Median	72	58	58.8

By applying to the normal-school group the Thorndike standards for prophesying college success on the basis of intelligence scores, a comparison was made between the intellectual ability of the normal-school students and the ability required for successful college work. Thorndike's interpretation of scores for a high-grade college follows:

- A boy scoring over 95 is worth admitting in almost entire disregard of technical deficiencies.
- A boy scoring 85 to 95 has intellect enough to do collegiate and professional work with distinction.
- A boy scoring 70 to 85 has intellect enough to do the work to obtain a college degree.
- A boy scoring 60 to 70 may be admitted if he is sufficiently in earnest and otherwise desirable.
- A boy scoring 50 to 60 should be admitted only if he is of extraordinary zeal or has suffered very great educational handicaps.
- A boy scoring under 50 should not be admitted.

He suggests that since the test "perhaps slightly penalizes girls in comparison with boys, having been designed primarily for the latter," present standards may be set five points lower for girls than for boys. Since the overwhelming majority of Trenton students are girls, this adjustment of standards was made. The following summary shows for the normal-school group the prophecy of success in intellectual work of the quality demanded for gradua-

tion from a high-grade college, in terms of the modified Thorndike standard:

Approximately 1.5 percent score over 90. These might be admitted to work of collegiate grade in almost entire disregard of technical deficiencies.

Approximately 4 percent score from 80 to 90. They could do collegiate and professional work with distinction.

Approximately 26 percent score from 65 to 80. They have intellect enough to do the work to obtain a college degree.

Approximately 28 percent score from 55 to 65. They might be admitted if sufficiently in earnest and otherwise desirable.

Approximately 24 percent score from 45 to 55. They should be admitted only if they possess extraordinary zeal or have suffered very great educational handicaps.

Approximately 16 percent scored below 45. These students should not be admitted to work of college grade.

So far as this group of students is concerned, then, 6 percent are capable of doing work of college grade with distinction; an additional 26 percent have sufficient intellect to do successfully the work necessary to win a degree; 50 percent might be admitted to work of college grade only under very special conditions; 16 percent test so low that they should not be admitted to work of college grade under any circumstances.

Such an analysis and comparison of intelligence levels is administratively important as a basis for considering modifications in curriculum and method, and as a basis of adjusting with colleges and universities the amount of credit to be allowed for normal-school work. Also the wide variation in the intellectual abilities of normal-school students which is thus thrown into relief, re-emphasizes the necessity of giving due weight to the matter of intellectual ability in sectioning students for purposes of instruction. The attempt to teach in the same classes, students who are capable of doing college work with distinction and students who are intellectually incapable of doing such work at all, must inevitably be unprofitable and wasteful, if not wholly disastrous to one or both types of student.

Inspection of Table III not only reveals wide variations in individual ability but also shows differences in intellectual ability

in classes entering in different years. Disregarding the class of 1920, which was tested at the end of the senior year, and the February classes, which were tested six months after entrance to the normal school and so presumably had eliminated by this time their weakest students, there is a marked contrast in the distribution of scores for the class of 1921 and the two classes which follow it. The probable explanation of the intellectual superiority of the class of 1921 is found in the fact that it entered the normal school at a time when economic motives urged earning rather than studying and business rather than teaching. The normal school consequently drew a smaller and more highly selected group than it has drawn in the two succeeding years. During these two years every possible appeal has been made to induce high-school seniors to prepare themselves for teaching. No corresponding care has been taken to measure the mental status of those who have responded to the appeal.

In addition to the general course, which qualifies for teaching in any grade of the elementary school, Trenton offers a number of special courses: a kindergarten-primary course, which prepares for teaching in the first four grades; a domestic science course, a commercial teacher's course (3 years), a music supervisor's course (3 years), a manual training course and a physical training course. An analysis of the intellectual level of the student body should include a study of the test scores of students electing these special courses, comparing each course with the other special courses, and with the general course, as to its intellectual level. Table V enables us to make such a comparison for two classes.

The data given in this table serve to define an important administrative problem whose solution demands still more data of the same type, a careful study through a series of years of the educational and professional careers of these special students and an analysis of the abilities which their special work demands. Graduates of the Physical Training group and of the Music group will be called upon not only to teach children but also to supervise the work of other teachers. From this point of view, theoretically a higher type of intelligence should be demanded for acceptance of candidates for these special courses. Do other factors in the situa-

TABLE V.—DISTRIBUTION OF THORNDIKE INTELLIGENCE SCORES FOR JUNIORS IN DIFFERENT COURSES OF THE NORMAL SCHOOL AND FOR DIFFERENT DIVISIONS OF THE GENERAL COURSE, SECTIONED ACCORDING TO HIGH-SCHOOL MARKS

Course	Median		Highest Score		Lowest Score		Limits of middle fifty percent		Number of Cases	
	Class		Class		Class		Class		Class	
	1922	1923	1922	1923	1922	1923	1922	1923	1922	1923
Commercial (3 years).....	54.2	57.0	67.4	74.7	38.8	31.4	61.0-49.4	41.1-63.6	11	19
Domestic Science.....	56.8	53.7	80.4	83.5	22.3	30.8	53.0-70.0	41.9-60.2	20	13
Kindergarten-Primary.....	51.0	56.4	76.5	78.5	24.0	31.2	45.2-60.1	45.9-69.1	43	48
Manual Training.....	—	57.3	—	59.6	—	54.6	—	54.9-59.5	—	4
Music (3 years).....	56.5	59.0	68.0	81.7	37.0	42.3	48.0-61.0	49.0-66.1	6	10
Physical Training.....	56.8	58.3	71.8	79.2	44.9	45.9	50.0-62.6	53.7-65.9	18	26
General Course—										
Commuters.....	55.4	61.4	76.6	80.6	25.1	38.2	40.2-64.4	48.4-66.0	22	20
Section A*.....	66.1	65.7	83.0	83.4	40.0	34.1	60.8-69.8	59.4-75.5	25	30
Section B.....	63.9	61.0	78.6	83.0	47.1	36.8	57.3-71.0	50.2-67.5	26	30
Section C.....	54.8	57.9	82.4	84.9	37.6	28.2	45.3-64.4	53.4-67.0	28	29
Section D.....	51.8	56.8	77.5	78.1	33.2	45.0	44.7-63.7	49.7-65.5	22	29
Section E.....	51.1	55.5	70.8	83.3	30.5	27.1	45.9-60.0	49.7-62.4	22	30
Section F.....	50.2	53.5	69.7	76.1	21.4	30.6	42.6-57.8	47.3-60.5	25	29
Entire Class.....	55.9	57.8	83.0	84.9	21.4	27.1	47.7-64.4	49.5-65.0	269	317

\* A is the highest ranking section.



tion make this demand unwise? Table V shows that the medians for these two sections are somewhat higher than the medians for the class as a whole in both years for which data are presented.

In general, the table shows no conspicuous tendency for the special-course students to test on the average higher or lower than the general-course students. The kindergarten-primary group, class of 1922, and the domestic science group, class of 1923, do test markedly lower as groups than do the classes of which they are a part. It is administratively important to consider whether the conditions required for success in the fields for which these courses prepare, demand changes in the selection of students for these courses.

Table V also shows the medians, highest, and lowest scores and the ranges of the middle fifty percent of students in the general course. The measures for the commuters' section parallel very closely the measures for the class as a whole. The remaining six sections, grouped according to ability on the basis of high-school marks, show by their medians that an attempt to section according to ability even on this basis does produce a somewhat more homogeneous grouping than a hit-or-miss procedure. Comparison of the range of scores, however, and of the limits of the middle fifty percent, indicate the necessity of re-sectioning if anything like homogeneous groups are sought, and this re-sectioning will be done at the beginning of the second semester.

In a professional school for teachers it is important to discover early, not only a student's scholastic promise, but also the probability of his success in his actual work as a teacher. To what extent can the student's intelligence score be taken as a prophecy of his probable success in practice teaching and of his success in classroom teaching after graduation? The only objective evidence that can be offered from the Trenton Normal School at this time is a correlation between the practice teaching marks and the intelligence scores of the class of 1921. This correlation, calculated by the Pearson product-moment formula, is .11; P. E., .05. If other data, which will soon be available, should support this evidence of the low relationship between the intelligence score and success in classroom teaching, it will be highly important for normal schools to investigate every method of measurement that offers hope of



discovering and testing the abilities other than abstract intelligence, required for success in teaching. Trenton expects to give the Downey Will-Temperament test in the near future and to study the results in relation to classroom success. The Millersville Normal, Pennsylvania, is also planning to study the possible value of this test.

While the Trenton Normal School will maintain the experimental attitude toward its use of intelligence tests—attempting to analyze its results more fully, checking its tentative conclusions by further study, supplementing from time to time the test now in use by such others as may offer hope of throwing light on the more effective conduct of teacher training, no doubt remains as to whether an intelligence test is a valuable administrative tool. Such a test has become a necessity.

Experimentation with the Thorndike Intelligence Examination in this school seems to justify the following summary of administrative uses, actual or potential, of such a test in normal schools.

1. The test is valuable, and should yearly become more valuable, in helping to locate (*a*) students who have not sufficient intelligence to complete a normal-school course, (*b*) students who have sufficient intelligence to complete the course only if given more than the allotted time, (*c*) students who are capable but who make poor grades because they are lazy, physically unfit or have temperamental defects which interfere with scholastic success.

2. The test furnishes a valuable basis for conference with students who are doing poor work or who are doing work of a quality poorer than their ability warrants. The dean, student advisor or teacher will find the intelligence test score a welcome check on his own personal judgment of the student's mental ability.

3. The test scores provide an objective basis for sectioning students according to their intellectual ability.

4. The intelligence records provide a valuable basis for conference with high-school principals with respect to the quality of work done in the normal school by their graduates.

5. The records provide an argument for the administration of intelligence tests in high schools and the consideration of scores

there achieved as one basis for advising students as to the wisdom of entering the normal school.

6. The most far-reaching potential administrative use of the test is that it may serve as a research tool of the greatest ultimate value in helping to analyze and define the problems of teacher training. Evaluation of curricula and methods can proceed scientifically only in the light of knowledge of the human material to which they are to be applied. Analysis of the raw material of teacher training is logically the first step toward determining the most effective handling of this material and toward trying to secure for the future a higher average of recruits for the teaching profession.

The experience with the tests also suggests certain cautions that should qualify the administrative uses of intelligence tests.

1. The tests should be given and scored under the direction of a competent person who is familiar with the requirements for valid testing. Record should be made of any unusual condition prevailing at the time of testing. A low score made by a strong student was explained by an examiner's note that Mr. X was evidently suffering from a severe cold. A high record made by a poor student was understandable in the light of an examiner's note that Miss Y copied from a neighbor.

2. No radical action, such as advising a student to withdraw from school, should be based upon the results of a single test, unless the conclusion from the score is supported by other measures of ability, such as high-school marks or teachers' judgments. Provision should be made for additional tests in doubtful cases.

3. Intelligence tests will not give all the facts that are required for prognosis of a student's probable success as a teacher. While there is unquestionably an intelligence level below which no one could fall and still succeed as a teacher, that point can be determined only tentatively at present. Somewhere along the line there may be a point above which additional increments of "intelligence" do not bring increased potentialities for success as a teacher. Certainly there are other qualities, the absence of which will cause failure in teaching no matter how highly endowed intellectually the individual may be. Experience shows that high test scores

alone do not insure success in practice teaching or in teaching after graduation. This fact, however, does not destroy the value of the intelligence test. It indicates, rather, the need of supplementing this test by other means of measurement. If reliable tests of temperament, executive ability, and the like can be developed, they will be of inestimable value. The writer believes that in the meantime, high schools and normal schools should keep records of the extra-curricular interests and activities of their students, and study the possible significance of these records in relation to qualities other than abstract intelligence, which may condition success in teaching.

### INTELLIGENCE TESTS IN CERTAIN OTHER NORMAL SCHOOLS

Prior to the current year a number of Pennsylvania Normal Schools had given the Thurstone Test IV Psychological Examination. The writer secured no report, however, of any administrative purposes to which this test may have been put. Two normal schools, Slippery Rock and Millersville, in 1920-21 gave Trabue's Menti-meter, School Group 2A. In the *Pennsylvania School Journal* for October 1921, Mr. J. B. Thomas, head of the department of Education at Millersville, describes the results of this test. The interesting feature of the report from the standpoint of possible administrative uses of such a test is a comparison of the median scores attained by students electing different curricula in the normal school. Curriculum I is elected by students who are to teach in grades one to three; Curriculum II by those who expect to teach in grades four to six; Curriculum III, by those who will teach in grades seven to nine or in the junior high school; Curriculum IV by those who will teach in rural schools. Mr. Thomas reports these results:

Median score of all Juniors.....	119.5
Median score for Curriculum II.....	108.5
Median score for Curriculum I and IV.....	117.5
Median score for Curriculum III.....	126.5

During the current year the Bureau of Teacher Training of the Pennsylvania State Department of Education has directed the giving of an intelligence test in all Pennsylvania Normal Schools. The

test used was a part of the Thorndike Intelligence Examination for High-School Graduates, Part I, forms I and M.<sup>4</sup>

The data for presenting comparative results of the Thorndike tests in the different Pennsylvania normal schools were not available in time for inclusion in this report. Such records as were available showed no marked variations in the intellectual quality of students in different normal schools. The medians, the highest and lowest scores, and the score limits of the middle fifty percent of students in the Pennsylvania normals also indicated that their intelligence level was approximately the same as that of the students in the Trenton, New Jersey, Normal School.

One table of results, furnished by the Indiana (Pennsylvania) Normal School, is reproduced here because it furnishes another comparison of the intelligence levels of students electing different courses in the normal school.

TABLE VI.—SCORES FOR THORNDIKE INTELLIGENCE TESTS; INDIANA STATE NORMAL SCHOOL, INDIANA, PENNSYLVANIA

Group	No. of Students	Highest Score	Lowest Score	Median Score	Range of Middle 50 percent
All Regular Seniors	211	276	110	196	170-216
Regular Seniors; Junior-High-School Curriculum	49	276	132	211	195-234
Regular Seniors; Intermediate Curriculum	73	253	110	195	171-216
Regular Seniors; Primary Curriculum	87	258	110	191	168-207
Regular Juniors	214	262	63	183	162-203
Special Art Students	6	242	152	196	183-225
First-Year Commercial	54	247	112	184	166-197
Senior Commercial	25	229	117	189	164-219
First-Year Home Economics	20	216	102	183	156-199
Senior Home Economics	21	215	104	158	140-193
First-Year Music	11	229	150	176	163-213
Senior Music	12	215	140	177	160-190

<sup>4</sup>It may be of interest to note here that the correlation between Part I, I & M scores, and the total score for the Thorndike examination, computed for a class of 205 juniors at Trenton is .87. The correlation between the total score and first semester marks is .55 and the correlation for the same individuals between the sum of Part I scores and first semester marks is .45.



Actual administrative uses of tests were reported by Pennsylvania Normal Schools as follows:

1. The tests are used by teachers or by the Dean in dealing with individual students in Mansfield, Millersville, Shippensburg, Manchester, and Slippery Rock.

2. Test scores are used in conferences with parents at Mansfield.

3. The test score is made a part of the personal record of the student and is taken account of in making recommendations for positions by Millersville and by Slippery Rock.

4. The test score is a factor in determining whether a student shall "pass" at Millersville. More is demanded from capable students in order to pass.

As possible additional uses, Mansfield and Clarion suggest that tests might be valuable in guiding students in the selection of subjects and in the election of the curriculum to be followed. Slippery Rock ventures the *hope* that the use of the intelligence test may eventually result in the elimination of those who very plainly have not the intelligence necessary to make successful teachers.

Dr. Rowland, Director of the State Bureau of Teacher Training, Pennsylvania, says that the department plans to use the test results in the following ways:

"First, for a comparative study of intelligence levels of our normal-school students with established standards.

Second, for a comparative study of the intelligence levels of the students in the several Pennsylvania normal schools.

Third, for a comparative study of intelligence levels of students in successive years.

Fourth, for a determination of the correlation between these intelligence levels and

- a. Results of physical examinations.
- b. Social and economic background.
- c. Secondary education record.
- d. Type of secondary school attended.
- e. Normal-school group elections (kindergarten-primary group, intermediate group, junior-high-school group, rural group).
- f. Normal-school scholastic record.
- g. Normal-school practice teaching record.



The Connecticut State Normal School at New Britain gave the Thorndike Intelligence Test to its entering class this fall. The principal writes:

"I am hoping that certain results will be attained. First, they will give us a basis for conferences with high-school principals concerning the character and attainments of the pupils they send us. Second, they will enable us to compare the general quality of pupils entering the normal schools with freshmen in colleges, and if our standards are too low we may bring pressure to bear to have them raised. Third, I hope the tests may make it possible for the teachers of the school to have a better acquaintance with their pupils."

Work with intelligence tests at the Maryland State Normal School, Towson, Maryland, is reported by J. L. Dunkle and Nellie W. Birdsong of that institution as follows:

We have had three definite aims in mind in the use of various tests with entrance classes: first, to set up equal-ability groups; second, to enable instructors to know better the several abilities of their classes and thus adjust subject matter and method of these; and third, to forecast the probable success of students, and to *check* on outstanding cases that are not measuring up to their tested ability.

In September, 1920, by the Otis Group Test, the entrance class of 120 students was grouped into three sections. The correlations between intelligence scores and academic standing for the year were: Section I, .21; Section II, .26; Section III, .38.

In September, 1921, the entrance class of 280 students was given the Thorndike-McCall Reading Test, and from the data secured they were grouped into six sections. Later the Terman Group Test was used to check the reliability of the grouping. The students could not be reclassified on the basis of the Terman Test because of schedule difficulties. At the end of twelve weeks, the first term, correlations by sections were made between the Terman rating and academic ranks, with the following results: Section I, .67; Section II, .50; Section III, .47; Section IV, .42; Section V, .37; Section VI, .53.

The low correlations between the Otis Group Test and academic rank may be due to any one of three factors or any combination of these, viz: (1) A certain antagonism between equal ability groupings and our marking system; (2) Failure of a *single* test to give or make possible homogeneous groupings; (3) Overconscientious tutelage on the part of the instructors of the weaker student groups.

The higher correlations of the Terman Group Test and academic rank may be explained as follows: (1) The Terman Test is better adapted to the age and status of our students than is the Otis Test: (2) A certain antagonism between equal ability groupings and our marking system may apply here but

will disappear as a factor for consideration when instructors are skillful in using and interpreting a grading system by letters.

In our opinion correlations between the Thorndike-McCall and the Terman Test show conclusively that the former can not be used very helpfully to group students according to ability.

Faculty opinion may be summarized thus: that the Terman Group Test clarifies the instructor's problem by giving her a chance to adapt method and subject matter to the normal, supernormal and subnormal groups; that the mental test helps her to stimulate the individual student to the realization of his possibilities and to keep him working toward that realization.

We have reached one conclusion, and it is that the school should provide educational guidance for those students whose repeated failures or extremely poor work and mental rating are in agreement. The ultimate result may be to direct such students into other fields.

The extension of administrative uses of intelligence tests in normal schools and the assurance with which administrative action may be based upon test results are dependent, in the writer's opinion, upon the building up of standards and the interpretation of results which will follow the bringing together and comparison of experience by all the normal schools which have been experimenting along these lines. It is hoped that the National Society for the Study of Education or some other national organization may in the near future make possible the assembling and presentation of this collective experience.



## CHAPTER IX

### THE USE OF PSYCHOLOGICAL TESTS IN THE ADMINISTRATION OF COLLEGES OF LIBERAL ARTS FOR WOMEN

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At one time in their history there was little danger of the Women's Colleges of Liberal Arts receiving students who were unlikely to benefit by a higher education. Women who sought college training were in general of high intellect and character. The road to college in those days, however, had to be stormed by women, whereas at the present time it is an open highway. Thus candidates for admission have greatly increased in number and represent a more varied sample of interests and abilities than in the past. It is most improbable that only the industrious, the studious, and the intellectually gifted now apply for entrance. The women's colleges are therefore faced with the same problem of selecting their student body as the corresponding institutions for men. Lacking the capacity to provide for the vast numbers clamoring for a college education, they must perforce carefully evaluate their methods of admission with a view to maintaining only those which can lay claim to being sound and right. Not only is it undesirable that they should invest money in training women who are unlikely to profit by advanced instruction, but it would also seem unfair in a democracy to accept the less gifted among women, while those more richly endowed were unprovided for.

Psychological tests form one solution of this problem, which is now being carefully evaluated. Mental tests have, of course, been applied very generally in the women's colleges. They have varied greatly in nature in accordance with the interests of the psychologist in charge and as a rule the abilities measured have been investigated for their own sake rather than for any help they might lend to the

administration of the institution. Tests of color vision, for example, were made at Mount Holyoke over a period of years. At Vassar College the desirability of mental tests as an aid in the forecasting of academic success was early realized and experimentation with a variety of these has been carried on for several years.

The successful application of group tests on a large scale by the United States Army revealed in unmistakable fashion their value as a means of selection and classification on the basis of general ability. This led Goucher College in 1918 to investigate the reliability of those tests which seemed best adapted to differentiate between higher levels of intelligence, with a view to determining their merits as one element in the machinery of admission and also as an instrument for the classification of students in the large required courses. For this purpose use was made of the Thorndike test of Mental Alertness in 1918, supplemented by other tests, and of the Thorndike Intelligence Examination for High School Seniors in 1919 and 1920, and of the Thurstone Psychological Examination for College Freshmen in 1920.

It has already been demonstrated that these tests have much value for these purposes. It has been shown, for instance, that a three-hour intelligence examination foretells achievement in the freshman year with almost as great accuracy as the previous school record. Again, it has been found that the correlation between the test results and collegiate work in the first year is somewhat higher than between the ordinary types of entrance examinations and freshmen grades. In general, the latter amounts to less than .45, whereas the coefficient found between psychological test scores (Thorndike Intelligence Examination) and freshmen academic grades has in the case of Goucher College students reached well over 0.60. The prognostic value of the tests is therefore satisfactory. They are of undoubted service as an additional check on other data determining fitness for admission.

Their utility in maintaining a high level of student body is not limited to aiding in the selection of students for entrance. They can be an important factor in settling cases of elimination from college. For example, a student of superior intelligence may possibly carry college work with moderate exertion of effort; but stu-



dents in the lowest ten percent of college women in ability can never hope to cope with academic subjects on the college level, if industry is lacking. We can accordingly, very early in the student's college career, dissuade those of inferior capacity, who are failing to master the freshmen tasks, from attempting work to which they are not prepared to give unusual effort. In determining these eliminations at the end of the first or second semester the mental tests prove in this way of much practical assistance. Other minor practical values they have, also. To give one instance, it is judicious to present to the student who is advised to withdraw and in some cases to her parents or guardians as much evidence as possible of her unfitness to cope with the college curriculum. To relieve those who have the responsibility of recommending withdrawal of some of the onus of requesting a student to leave the institution is in itself a contribution.

Mental tests make possible a comparison of the student body with that of other colleges of like kind in a very important respect. It is of some moment to know whether a college is receiving the same proportion of able students as similar institutions, since one important element in estimating the achievement and relative standing of a college is the carrying power of its graduates, and if institutions are not receiving equally fine student material, the distinctions earned by their graduates are likely to be fewer, however fine the instruction and however ample the resources. Any administration seeking to maintain the high reputation of an institution must needs have the means of selection of students in mind, and the wise use of this new instrument is a valuable aid to success in this respect. Adequate preparation is of course an influential factor also, but thorough preparation alone will not compensate for relatively inferior ability. Indeed, no single factor contributes more to the success of a college than a student body of attested ability.

For these and other reasons it is desirable that standards for entrance to the women's colleges of liberal arts should be determined on a joint basis and that the same tests should be applied in several of these institutions. Already valuable information is at hand from the application of the Thorndike Intelligence Examina-

tion to several men's colleges of different type, to normal schools and to a group of women in a state university of the Middle West. Only by such comparative data can a thorough comprehension of the more important of the actual conditions prevailing in a particular institution be had.

Tests such as the Thorndike Intelligence Examination were originally designed for the selection of men. Some of them are admittedly ill-adapted to women, requiring such knowledge as the typical woman candidate for admission to a college is unlikely to have. Consequently, women obtain, in general, lower scores on the whole examination than men in similar institutions. A detailed survey of the differences found would be illuminating and the substitution of new tests requiring knowledge of a kind familiar to women, but unknown by the typical man, is desirable.

Intelligence tests serve a purpose still more intimately related to the successful administration of the women's college, and the realization of its aims. They make possible the classification of students on the basis of ability in the various sections of the courses required of all students. Too little attention has been paid to this desirable organization in the past. Even to-day heads of departments in the women's colleges will make the statement that a fifteen-minute test given early in a course will suffice to arrange the members of the group tested in an order of merit, which is representative of their true ability in the trait or traits measured and which remains the same in all future testings. Much evidence exists, however, as to the unreliability of such results and as to the undoubted value of grouping together those of proved similar capacity in the case of pupils in the elementary and secondary schools. While it is true that classification on the basis of similar achievement in the particular subject of study has much in its favor, nevertheless, general ability is a potent influence in progress and we ought to take it into account in classifying students where no better method is available and provided the system of assigning sections is sufficiently flexible that transfers can readily be made.

There is much waste at present in the colleges of liberal arts for women because such a system is not in operation. Inquiry along this line at Goucher college revealed a great range of differ-

ences among freshmen and notably in abilities which are fundamental to success with college work. A detailed study of the marks obtained in the reading tests in the Thorndike Intelligence Examination indicates clearly that the assignments given in such subjects as history, sociology, economics, and psychology are beyond the power of some of the students to comprehend and assimilate in the time at their disposal. There can be no doubt that, in an effort to meet the needs of the largest number, the top and bottom 20 percent are being sacrificed for the middle group of average students. Better results would follow from classification of the freshmen in required English courses on the basis of reading ability or on language ability (where all tests involving mastery of the vernacular are pooled). Moreover, the instructor's problem would be vastly simplified in having a group of similar capacity to teach.

This consigning of students to sections of like ability is in essence a phase of educational guidance. The rejection of certain candidates for entrance and the later elimination of others, are other phases of the same process, since directing students away from work for which they are unfitted is valuable for students as well as for the institution. There are other aspects of guidance in which intelligence tests can be of much assistance. The student of superior ability who receives low academic grades obviously requires different advice from the student of meager mental talents, who receives low grades. The correct location of the source or sources of failure with college work is essential to attaining efficiency, and the intelligence indices of the students make diagnosis of causes of inefficiency a more easy task. An analysis of the causes sometimes reveals conditions of which the administration was unaware. It may be that the institution is not providing an environment favorable to study. Library, laboratory or dormitory conditions may be found to be inimical to good work. Student government weakly functioning, for instance, sometimes fails to secure dormitory conditions favorable to study. On the other hand, it may be found that the individuals under consideration have remediable deficiencies, which require special attention, such as poor methods of learning, or inadequate study programs, leaving too little time for scholarly activities, or absence of scholarly ideals. Students from

small rural high schools certainly find adjustment in a large college community difficult. Often they lack training in planning out their working day, and frequently their methods of learning stand in need of correction. Lack of capacity has often been assigned as a cause for what is really to be attributed to defective training and limited past experience. The tests serve as a corrective in this connection and the official responsible for educational guidance of the students has a means of bringing pressure to bear on able students whose work has been unsatisfactory, so as to enforce the speedy acquisition of new and valuable habits.

For many reasons it would seem essential that academic grades should be as accurate as possible and should really represent the relative achievements of the students. While it is true that certain students of high intelligence may be lacking in zeal, nevertheless in the long run and in general we expect the students of superior ability to achieve most; in other words, we expect a high correlation between intelligence and college marks.

It follows that we would expect such academic subjects as select the superior women in intellect to have a disproportionate share of higher academic grades, and *vice versa*. The test results consequently can act as a valuable check on the prevailing Missouri System of marking. Investigation along this line has been made at Goucher College with a view to ascertaining the mental caliber of the students majoring in the various college subjects. So far results have been obtained for two years. The data are of course insufficient to justify us in drawing any generalization as regards Goucher College for other years. It is true, however, of these two years (the present junior and sophomore classes) that there are notable differences in intelligence level between departments. These results are in part due to chance and in part due to local and temporary conditions. Yet the fact remains that in such cases, where the poorest student majoring in one subject is superior mentally to the average student majoring in social science, the applicability of the normal probability curve, even as a guide to grading, is seriously to be questioned. It would be more scientific to have grades conform to the intelligence curve typical of the group



selected by the particular subject. The plan should be generally adopted of furnishing the instructors in the various departments with the intelligence distribution for the actual students in their advanced classes of the current year, and as soon as such data are available, the intelligence distributions of their majors during a sufficiently large number of years. If it is remembered that distinctions such as Phi Beta Kappa and scholarships depend sometimes immediately and always remotely on college marks, it would seem unfair to penalize students majoring in certain fields by making the securing of a high grade much harder in some subjects than in others.

In any event those in authority should be aware of such selective influences at work. A wise administration could utilize such information to good effect. Thus, the problem of deciding for or against new requirements for majors in any department should surely be considered in this light, as well as in the light of other facts. It would seem necessary likewise that teachers should realize the mental quality of those they are training. The more thorough the knowledge of the person to be trained, the more efficient will be the instruction.

Of recent years the women's colleges have come to accept more responsibility for the guidance of students in the choice of a career. The means towards this end have been varied. Occasionally they have assumed the form of providing information through a series of lectures given by successful workers in fields open to women. Such a method has been used at Vassar and elsewhere. At Wellesley a more ambitious plan of individual consultation has been carried on, in which Miss Florence Jackson, of the Women's Industrial and Educational Union, has played the rôle of vocational adviser. The knowledge of the students' tastes and preferences so obtained has been of much value when linked with academic records of capacity. At Goucher College a beginning has been made in determining the selective effect of the various occupations from the standpoint of intelligence. It is planned to make a detailed study, not only of changes of occupational choice by the students during their four years in college, but also of subsequent success in the



occupations entered upon, and of the intelligence level of graduates entering the various fields of work.

It will be helpful, after a sufficiently large number of cases have been studied, to acquaint the student as to the ability of those in the occupation under consideration with whom she would inevitably be compared and with whom she must compete. Such knowledge, while far from constituting the whole or the major part of what needs to be known in making choice of a profession, nevertheless has real worth and may contribute to an appreciably better decision. Obviously, it needs to be supplemented in many ways, and at Goucher the improvement of methods of subjective rating of the students is being investigated together with other features in a desirable system of college records of students' abilities and achievements.

An ambitious scheme looking towards more specific vocational guidance is under way at Vassar, where a Bureau of Personnel Research is already established under the direction of the Department of Psychology. It is hoped that such a study will be made of the individual student as to make vocational guidance much more feasible.

There are other minor services that psychological tests can render in the administration of women's colleges, but they have more than justified the time, effort, and expense they involve by their improvement of methods of selecting, classifying, and grading students. They must, of course, be further improved and better adapted to women. Their results must still be carefully studied and evaluated, but there is no room for doubt that they are of great service and can afford clues of importance as to the proper action to be taken in administrative problems.

# CHAPTER X

## INTELLIGENCE TESTS IN COLLEGES AND UNIVERSITIES

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The aim of this paper is to summarize a considerable portion of the work that has been done in administering intelligence tests to college students. The material at my command is doubtless not exhaustive, but it is sufficiently complete to indicate the general situation in this field of intelligence testing.

For convenience I have cast certain portions of this summary into semi-tabular form. The table contains first of all, a list of the 29 institutions reported upon. This list begins with Brown University and concludes with Yale. It includes both private institutions, like Brown, Dartmouth, and Harvard, and state universities, like Illinois, Iowa, Michigan, Ohio, and Nebraska. It includes small institutions, like Clark, Hamline, and Reed, and large institutions like Chicago, Columbia, Harvard, and Michigan. It includes men's colleges, like Dartmouth, women's colleges, like Goucher, Sophie Newcomb, Wellesley, and Vassar, and co-educational institutions, like the majority of the list. On all these counts and in geographical distribution as well, the list may be regarded as sufficiently representative of the colleges of the United States, even if there have been important omissions.

In the second column there appear the names of the tests that have been used (mostly prior to 1921) in these institutions. The reader will note in general two types of test; first what are known as tests of general intelligence (illustrated by the Army Alpha test and the Thorndike test), and second; what may be termed tests of special aspects of intelligence (illustrated by these that appear, for instance, for the University of Chicago—number checking, constant increment, directions, etc., or for the University of Iowa or the long list for Harvard).

If we examine this column of tests more carefully, it will be evident that among the stock group tests of general intelligence, the Army Alpha test has had by far the most extended usage—it has been used, for instance, at Brown, Carnegie, Clark, Colorado Agricultural, Dartmouth, Hamline, Illinois, Michigan, Minnesota, Ohio State, Pennsylvania, Purdue, Rochester, Southern Methodist, Wyoming, and Yale, that is, in at least 16 of the 29 institutions represented. The reason for the great popularity of this particular intelligence examination is not far to seek. It was the first group intelligence test to be constructed by the joint efforts of a group of well-known psychologists; it was devised with special reference to use with adults; it has been applied in the army to more than one and three-quarters million of men (one of the really great feats of human engineering, I may add); the results have consequently reached a degree of standardization never attained by any other test; the test blanks were procurable for several months after the armistice at prices far below what other tests could be produced; the results obtained in the army far exceeded the most sanguine hopes of its makers.

Notwithstanding these many advantages, there are certain disadvantages about the Army Alpha test that are well recognized by those of us who frequently advocate its use. For one thing, it is possible for any person to buy copies of it with the keys to the answers (for example, in the book on *Army Mental Tests* by Yoakum and Yerkes), so that there would not be an insuperable obstacle to overcome for any student who wished to arm himself in advance by coaching on all five forms of the Alpha that are available. For another thing, and this is really more important, the Army Alpha examination is really somewhat too easy for the average college student. Too much of the 40 minutes used in its application is taken up with material that is perfectly simple, so that it does not act as efficiently as would a test specifically designed for a selected group of superior intelligence. Again, there is some evidence that the Army Alpha test is so phrased and constituted as to favor men over women, though this objection is not particularly serious.

# INTELLIGENCE TESTS IN COLLEGES AND UNIVERSITIES 255

TABLE I.—SUMMARY OF COLLEGES AND UNIVERSITIES SHOWING MENTAL TESTS USED AND GROUPS TESTED

Institution	Tests Used	Date	Groups Tested
1. Brown University	Army Alpha	1918	Freshmen and some others (400-500)
	Thorndike Coll. Entrance	1919	Freshmen (about 300)
	Thorndike and Special Brown Univ. test	1920	Freshmen (about 275)
2. Carnegie Institute Technology (including Margaret Morrison Carnegie School)	Army Alpha	—	Freshmen
	Trabue Completion Robinson's Range of Interest Gordon's Directions Analogies Whipple's Marble Statue Opposites	1917	114 freshmen
3. Chicago University of	Number Checking Opposites Constant Increment Directions Word Building Sentence Building Business Ingenuity Memory tests		Freshmen and other entrants
4. Clark University	Army Alpha Otis General (A and B) Otis Individual Thurstone Substitution Thurstone Reasoning Digit-Symbol Haggerty Reading Thorndike Coll. Entrance		Each freshman class, 300-400 in all
5. Colorado Agricultural College	Army Alpha (6 and 9)		500 college students and 350 prep. students
	Terman (Form A)		218 college students and 80 ex-soldiers
6. Columbia University	Thorndike Coll. Entrance	Since June 1919	Majority of freshmen 700 reported in 1920
7. Dartmouth College	Army Alpha Rating Scale Special Information Test	1920	143 freshmen of class of 1923

Institution	Tests Used	Date	Groups Tested
8. Goucher College	Thorndike Mental	1918-	98 seniors
	Alertness	1919	132 freshmen
	Thorndike Coll. Entrance	1919-	243 freshmen
	Thorndike Coll. Entrance	20	150 freshmen
	Thurstone Coll. Entrance	1920-	150 freshmen
	Columbia Intelligence	21	(random groups) 254 freshmen
9. Hamline	Army Alpha	1919	74 men— 145 women
10. Harvard	Yerkes-Rossy Point Scale		110 men of a class
	(20 tests arranged for group exam. through lantern slides)		in psychology
	Response to pictures		(average age of juniors and seniors 21.16)
	Comparison of weights		130 women of psychology class (all seniors. Average age 22.2)
	Memory span for digits		
	Suggestibility		
	Memory for unrelated sentences		
	Comparison of terms		
	Comprehension of questions		
	Definition of terms		
	Appreciation of questions		
	Analogies		
	Association of opposites		
	Relational test		
	Box test		
	Ingenuity test		
	Comparison of capital letters		
	Code learning test		
	Ball and field		
	Geometrical construction		
	Reproduction of diamonds		
	Memory for designs		
11. Illinois, University of	Army Alpha, Form 6	1919	3500 students, all classes
12. Iowa, State University of	Courtis Arithmetic (Series B)		Freshmen
	Whipple's Analogies		268 men
	Simpson's Opposites		276 women
	Completion		
	Visualization		
	Whipple's Information		
	Logical Memory (The Dutch Homestead)		
	Thorndike Coll. Entrance	1921	Freshmen



Institution	Tests Used	Date	Groups Tested
13. Michigan, University of	Thurstone, Test IV, Form 6	1921	350 probationers and 150 non-pro- bationers
	Army Alpha, Form A		
	Whipple Coll. Reading, I		
	Thurstone, Test IV, Form B	1921	325 probationers and 50 non-proba- tioners
	Army Alpha, Form 6		
	Whipple Coll. Reading, II		
	Army Alpha, Form 9	1922	250 probationers and 50 non-proba- tioners
	Brown Univ. Tests		
	Whipple Coll. Reading II		
14. Minnesota, University of	Army Alpha, Form E	1917	275 freshmen
	Army Alpha, Form 6	1919	279 freshmen
	Analogies		200 sophomore women
	Opposites		
	Trabue Completion, Scale J		
15. Newcomb, H. Sophie Memorial	Color triangles	1916	99 freshmen
	Woolley Substitution		(mental tests)
	Cancellation		32 seniors and 25 freshmen
	Memory (Marble Statue)		(information test)
	Genus—Species		
	(Woodworth-Wells)		
	Woolley Opposites		
	Word-Building test to half of pupils, and Ink-Blot test to the other half		
16. Nebraska, University of	Thorndike Coll. Entrance	1921	1192 freshmen
17. Northwestern University	Trabue Completion	1916	100 freshmen
	(K & W)		
	Hard Opposites		
	Whipple's Information Test with substitution of 30 words, instead of marking by letters.		
	(Brief responses re- quired)		
18. Ohio State University	Army Alpha, Forms 5, 6, 7, 8, 9 (Form 7 used twice)	1919- 20-21	5,950 (entire stu- dent body)
	Revised Alpha		To all new enter- ing, 2,398 new students
19. Pennsylvania, University of	Army Alpha	1919	Freshmen and 186 returned soldiers
	Witmer's Form-Board		94 students in Psych. 1
	Cylinder		
	Memory for digits		
	Syllables, paragraph (Binet)		
	Trabue Language test		

Institution	Tests Used	Date	Groups Tested
20. Purdue, University of	Army Alpha		1,159 students (85% of enrollment)
21. Reed College	Standard tests on memory, association, attention, suggestion, imagination, judgment	1912-13	195 students
22. Rochester, University of	Army Alpha Otis Stanford Revision of Binet	1919-20	550 freshmen
23. Rutgers College		1920-21	freshmen
24. Southern Methodist College	Army Alpha		128 freshmen 79 sophomores 54 juniors 41 seniors
25. Texas, University of	Card Dealing Card Sorting Alphabet Sorting Mirror Drawing Spirometer		54 freshmen (boys) 52 freshmen (girls)
26. Vassar College	Woodworth-Wells Hard Opposite tests Analogies Test (Lists A and B of Woodworth and Wells) Substitution Cancellation Information Terman's Superior— Adult Tests	1917	38 seniors (with records from highest to lowest) 2 groups of 25 students
27. Washington, State University of	No statistical data	—	—
28. Wyoming, University of	Stanford Adult Test Army Alpha  Thorndike Coll. Entrance 30 Individual Tests Will-Profile	1916  1918-19 Summer 1919 1919	100 in 3 groups (freshmen, upper classmen, faculty) 143 students, all classes 60 rural school teachers 100 freshmen 145 freshmen and 104 other students 30 selected freshmen
29. Yale	Army Alpha, Forms 5 and 6		400 freshmen

Many of these objections have been met in the series of group intelligence tests prepared by Professor E. L. Thorndike for use with the freshmen at Columbia College and widely advertised as one of the standard devices for admission to that institution. These tests, as Table I shows, have been tried not only at Columbia, but also at Brown, Goucher, Iowa, Nebraska, Wyoming, also in several Normal Schools (see this Yearbook, Chapter VIII), and doubtless elsewhere. The Thorndike tests present three features that deserve mention: in the first place, their content is such that they present distinctly greater difficulty than the Army Alpha; in the second place, they are constructed by drawing material in chance lots from a large mass of previously prepared material, so that fresh examinations can be constructed for a period of years with the probability that each examination booklet will closely approximate in difficulty that of any other; in the third place, they demand a much longer time than any other intelligence tests on the market—each of the three parts of the examination takes the best part of an hour, and the total examination thus ties up a morning or an afternoon of the students' schedules. Professor Thorndike maintains that his tests show not only a man's intelligence, but also his ability to stick to a long and, at the end, somewhat distasteful task. The full Thorndike examination undoubtedly gives correlations with scholarship higher than those afforded by the Army Alpha tests, but they do not appear to exceed greatly, if at all, the correlations afforded by other special college group tests, like the Brown University tests. Thus, Professor Thorndike informs me that his entire examination affords correlations with success in the freshman year of .60; that Part I, which takes an hour, affords correlations of about .45 to .48; that Part II, which takes another hour, affords correlations of about .45; that Part III affords considerably lower correlations, but is valuable on account of its high partial correlations. He says: "I feel it my duty to add that to raise the correlation from .45 to .60 seems to me worth far more than the extra time required." Professor Colvin states that "the net correlation between the Brown University test and college marks for two terms was .60." He adds, moreover, that he could find no indication from examining data secured at Brown with the Thorndike tests that those tests showed up a 'quitter' or a man with a 'yellow

streak'." From another institution it was reported that two or three students fainted under the three-hour strain, and the faculty became indignant at this alleged imposition of hardship. Some evidence against too long an examination may be found in the recent demonstration by Hansen and Ream of Carnegie Institute of Technology, that in the 25-minute "Scrambled Alpha" test the score obtained in the first five minutes is fairly proportional with the total score (correlation 0.88), that for the first ten minutes is closely proportional (correlation 0.92) and that for the first 15 minutes virtually identical (correlation 0.96) with the total score for 25 minutes. This means that very little alteration in the standing of students would result, in that test at least, if the examination was stopped at the end of five minutes and that, to quote these writers:<sup>1</sup> "*For practical purposes in predicting school success, the fifteen minute test is just as satisfactory and reliable as the longer test.*" It is for this reason that I myself have preferred to devote the time for examining students to the giving of several tests of different sorts, rather than to giving a single, long, general intelligence test.

Into the merits of the several special mental tests that appear in the list this is hardly the time to go; the matter is too technical, and it is my judgment that the use of some form of general intelligence test is likely to supplant the use of tests of special aspects of mental capacity except for certain special situations. I may call attention, however, to the use of some form of reading test in one or two institutions and even to a test of arithmetical abilities, as suggesting the possible addition to intelligence testing of a limited amount of testing of certain school skills.

The third column of Table I merely indicates, where they are known, the dates when the testing has been done. That we may pass by with the comment that practically all of this work is quite recent and much of it still in the experimental stage.

The fourth column shows the groups tested at the various institutions. In a few institutions, like Illinois and Purdue, the entire student body has been tested, but in almost all the other institutions

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<sup>1</sup> *J. of Applied Psych.*, 5: June, 1921, p. 186.



the testing has been limited to the freshmen. At Michigan, the testing has been confined to students on probation, and in part this has been an object at Clark, Columbia, Minnesota, Yale, and elsewhere. I shall return in a moment to the purposes of the testing.

In a few institutions I solicited by correspondence, information concerning the attitude of faculty and students toward the intelligence testing. Without attempting any statistical summary, it may be said that this attitude ranges from more or less scepticism through indifference to enthusiastic approval; in general, the work has been taken quite seriously and at least with open-mindedness. My experience at Michigan leads me to believe that many of the students are very keen to take mental tests; that they are anxious to learn their standing, and that they do not at all regard the testing of their mental ability in the light of an imposition, as some college administrators have feared.

To revert now to the object of the testing, it is evident that in many institutions the work is confessedly in a tentative stage or has been done purely for scientific purposes. Thus, the testing of 3500 Illinois students, as far as I know, led merely to the publication of median scores for the various classes and colleges. No attempt has been made by the administration to utilize the results in the guidance of students. Similarly with the work in several other colleges and universities. On the other hand, at Ohio State the entire student body, 5900, took the tests (and the faculty as well, I believe), and the results have been used by the deans in consultations with individual students regarding their performance in the classroom. At Michigan, the results of the tests of probationers were submitted to the administrative authorities, and have been used as one source of guidance in determining whether a given student should, or should not, be permitted to continue his university work. At Brown there exists a much more elaborate machinery for utilizing the intelligence tests. The results are made use of by a special committee whose function is to guide and counsel students in the selection of courses and in the choice of their life work.

At Columbia, intelligence ratings form one of the officially recognized means of admission to the college. To enter Columbia on



the basis of intelligence test scores, the student must have completed in an acceptable secondary school a course of four years' study. He must be able to offer three units in English,  $2\frac{1}{2}$  units of mathematics and at least 3 units in a foreign language. His school course must have been concerned primarily with languages, science, mathematics and history.''<sup>2</sup>

At Pennsylvania, students from first-class high schools whose rank is not high enough to secure a certificate may enter by either taking four examinations in subject matter or taking an examination in English and securing a certain standing in an intelligence test in which their scores are compared with those obtained from the testing of 1600 students and 200 returned soldiers.

There remain to be considered some of the typical results. I shall make no attempt here to set forth the actual statistical results concerning scores, medians, distributions, in the various tests (that is a technical matter that we may neglect for our purposes), but will confine my remarks to results that show the predictive value of the tests to their relation, in other words, to academic success.

In presenting these results, it ought to be made clear at the outset that no psychologist is foolish enough to suppose that native intelligence is the sole factor in academic success; all that is contended is that it is one factor, and probably the most important single factor, and that it is measurable by wholesale rapid methods with a reasonable degree of precision. It follows that the correlation between test scores and college marks or instructors' estimates or any other criterion of academic success will never reach perfection. On the other hand, it will always be positive and lie somewhere between 0 and plus 1.00, statistically speaking. Now, in general, a correlation above 0.30 may be regarded as of practical significance. Actual correlations between intelligence tests and academic standing seldom fail considerably to exceed this limit; they lie for the most part between 0.40 and 0.60. Let me cite a few at random: At Carnegie Institute of Technology correlations ranged in the thirties for the Thurstone Test, but reached 0.60 for a combination of five mental tests. At Brown, the correlation reached 0.60; at Chicago, correlation with instructors' estimates

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<sup>2</sup> Quoted from T. H. Briggs, *Education*, April, 1919.

was 0.65, with the college marks was 0.43; at Yale the correlation with marks was 0.38 in one group and 0.42 in another; at Dartmouth, Army Alpha correlated 0.56 with faculty estimates of intelligence and 0.43 with scholarship, while a test termed "completion of definitions" (one of the more difficult mental tests devised for college purposes) correlated 0.55 with scholarship for 577 men, 0.54 with faculty estimates of intelligence, and 0.78 with faculty estimates of "aggressiveness," 0.75 with faculty estimates of "reliability," and 0.69 with faculty estimates of "personal impression." At Southern Methodist, Army Alpha correlated 0.52 with college grades in all four classes. These figures are sufficient to show the general outcome of mental testing so far as its relation with college marks and faculty estimates is concerned.

This matter of correlations raises a very important point that needs elucidation here. It is quite possible, in theory, and sometimes happens, in practice, that a moderate or low statistical correlation may co-exist with a high predictive value if the object is to cull out very inferior or very superior mentalities; in other words, a mental test might fail to differentiate neatly among students of medium ability and still select with considerable precision, students of poor or of excellent ability. Suppose that the primary object of testing were to locate the men who ought not to be allowed to enter the freshmen class, it would then be relatively an indifferent matter if the testing did not locate in the order in which they afterward were located by their actual classroom accomplishments the men who were admitted. From this point of view, it will be seen that numerical expressions of the degree of correlation obtained are not always of final significance; what is wanted is a list of the most inferior prospective students which will serve as a reliable prediction of their likelihood of failure later in college. A typical instance may be cited from the work at the Carnegie Institute of Technology, where, in a certain piece of experimental work, 14 women were selected by means of six mental tests as entering students whose ability was so poor as to warrant a prediction of failure; at the end of the first term every one of these 14 students was found to be in difficulty academically; some had been dropped;

some had left voluntarily, and the remainder had been placed on a two-thirds credit program. If mental tests can accomplish this much, they are of great usefulness administratively, regardless of their precision in predicting the relative standing of the students who remain.

On the other hand, a test that would 'shell out' the ones of superior ability would also have administrative significance. A suggestion that I got from conversation with a member of the faculty of a western institution (I think the University of Iowa) strikes me as worthy of mention in this connection. The suggestion was in substance; why not 'warn' the best students of their ability as well as warn the poorest students of their lack of it? More concretely, it was suggested that, after the freshmen had been examined, the top five percent should be summoned to the office of the Dean or the President and placed, as it were, "on the carpet." They would then be informed that they represented the best five percent of their class, that their innate ability was known, and that the responsibility was now definitely placed upon them to produce college records that accorded with their potential promise. The same thing could then be repeated with slight variation with the second five percent, and again with the third five percent. Here then, all that is needed is that the mental test should cull out the best mentalities, regardless of its failure to differentiate accurately among the mediocre ones. If the material of the mental test is well selected and properly pitched, there should be little difficulty on that score, because, while a good student may sometimes for one reason or another, make a poor record in a test, it is almost impossible for a poor or mediocre student to make a good record by any lucky accident. The gaining of a first-rate score may practically always be interpreted as indicative of the possession of superior mentality.

I remarked previously that no psychologist regarded intelligence as more than one important factor in academic success. A quotation from Colvin<sup>3</sup> will bring out this point more specifically:

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<sup>3</sup> *Educational Monographs; the Society of College Teachers of Education*, Number X.

“In the main, there is a substantial agreement between the rating given a man in the mental tests and his academic record. However, in about fifteen percent of the cases a sufficient disagreement has been found to make it desirable to discover, if possible, the reasons for this disagreement. Personal interviews with the students whose records show such a disagreement have revealed the following facts:

I. It sometimes happens that the psychological tests fail to measure a man's real intelligence. This failure is due to various causes, most of which can be readily diagnosed as indicated below:

1. Sometimes a student tests low because of his relative unfamiliarity with the English language. This frequently happens in the case of foreign-born students, or students whose families speak in the home a foreign language. It may occasionally happen in the case of students who have had insufficient language training in the home and in the school.
2. A few students are slow, but accurate and thoughtful learners. The tests are too rapid to do such students full justice. On the other hand, the rapid but superficial learner has an undue advantage.
3. Sometimes students come from high schools where examinations are not required, and a strenuous psychological test at the beginning of their college career places them at a distinct disadvantage.
4. Emotional upsets may result in a low psychological score.
5. Lack of earnestness in taking the examination, and at times—though rarely—positive malingering, give scores far below the student's real ability.

II. The intelligence rating may be substantially correct, but other factors may weigh heavily in determining a student's success or failure in college. The most important of these are:

1. The character of the student, particularly his willingness to hold himself down to a strict mental regimen.
2. His ideals and purposes.
3. His previous educational training, including his study habits.
4. His outside distractions, including work, extra-curricular activities and social engagements.

In the light of these facts it may reasonably be concluded that psychological tests, while a valuable aid in determining a student's ability to do college work, cannot be relied upon blindly or exclusively. They must be used together with other materials as a basis for diagnosis and prognosis in connection with educational advice and direction in high school and in college.”

Very similar results appeared in my own work at Michigan when some 600 students on probation were given two general intelligence tests and a college reading test of my own devising. It was my assumption that the testing would unearth a considerable number of inferior minds, but the results did not confirm the expecta-



tion. On the basis of figures obtained in the examination of army recruits it has been stated by Yoakum and Yerkes that men who secure an "A" rating in this test ought to make a first-class college record and that men who secure a "B" rating ought to be "capable of making an average record in college." Actually, 94 percent of Michigan students on probation secured either A or B in the Army Alpha test (72 percent "A," 22 percent "B,") while, of the remaining 6 percent, several were students of foreign extraction whose low score must have been in considerable measure produced by lack of ready command of English. A special problem of obvious interest is raised here, which would repay further study.

Investigation of the reports made by the probation students themselves reveals the following items as responsible, in their own opinion, for their failures (the figures are the number of times the causes assigned were reported in a total of 324 cases in the first group examined) :

- 115 Change from high school to college conditions not fully appreciated and met
- 110 Health poor or handicapped by physical defect
- 100 High-school preparation inadequate
- 89 Working for self-support (2 to 7 hours per day)
- 60 Rooming conditions unfavorable to study
- 57 Never taught how to study
- 31 Insufficient sleep
- 29 Simple neglect of study
- 28 Illness (specific recent cases)
- 28 Worried about studies and prospect of failure
- 26 Out of school for a time
- 21 Military service interrupted college work
- (Miscellaneous causes less than 20 times each)

It is obvious that these categories overlap and it is true that most students report several factors, and also we must remember that nearly any one will concoct an alibi for failure if invited to do so; nevertheless, there must be some significance in this list of causes; it illustrates, in any event, that other factors than lack of intelligence operate to produce college failures, and suggests that the college has a real responsibility to arrange conditions that will be favorable to earnest work and stimulate the student to reap to the full the fruits of his potential ability.



General conclusions that may be drawn from the data gathered for this chapter are as follows:

1. Intelligence tests form a useful device in college administration, though they must be combined with other indications of the student's status to be most effective.

2. The time seems likely to arrive in the near future when the majority of college entrants will have already been given one or more intelligence examinations prior to their appearance on the college campus. There should be machinery for recording and transmitting their scores in these examinations and preferably also for translating the scores to a single (probably percentile) scale.

3. College students, as a group, take kindly to the idea of intelligence examinations. Many of them are ready to go out of their way to secure them and to discuss their rating and its bearing on their career.

4. The Army Alpha is the intelligence test thus far most widely used in the colleges, but it is evidently not the best possible test for this purpose; it is too easy and operates better to detect men who lack the minimum of intelligence necessary to do work of a passing grade than it does to differentiate among men in the higher levels of intelligence.

5. The college testing has already revealed interesting evidence of differences in the intelligence levels of groups in different parts of the country, in different institutions, in different courses and classes within the same institution.

6. There is some evidence that rating scales and other methods of appraisal for non-intellectual traits, like aggressiveness, persistence, honesty, leadership, etc., will eventually be developed that will supplant helpfully the results of intelligence tests.

#### SOURCES OF INFORMATION ARRANGED BY INSTITUTIONS

##### 1. Brown University

S. S. Colvin. "Psychological Tests at Brown University," *Sch. and Soc.*, 10: 1919, 27-30.  
 "Validity of Psychological Tests for College Entrance." *Ed. Rev.*, 60: 1920, 7-17.  
 "Purposes and Methods of Psychological Tests in Schools and Colleges," *Ed.*, 40: 1920, 404-416.  
 Summary of address before Society of College Teachers of Education at Atlantic City, February, 1921. Also correspondence.

2. Carnegie Institute of Technology L. L. Thurstone. "Mental Tests for College Entrance," *J. Ed. Psych.*, 10: 1919, 129-142. Also correspondence.
3. Chicago, University of H. D. Kitson. "Psychological Measurements of College Students," *Sch. and Soc.*, 6: 1917, 307-311. Also correspondence with Frank N. Freeman.
4. Clark University Correspondence with Dean J. P. Porter.
5. Colorado Agricultural College Correspondence with G. T. Avery.
6. Columbia University T. A. Briggs, "New Columbia University Admission Plan," *Ed.*, 39: 1919, 473-480. (Very general).  
Dean H. E. Hawkes. "The Uses of Intelligence Tests in Colleges and Universities," *U. of Pa. Bulletin; Seventh Annual Schoolmen's Week Proc.*, 1920, pp. 260-261. Thorndike, E. L. "Intelligence Examinations for College Entrance," *J. Ed. Research*, 1: 1920, 329-337.
7. Dartmouth Henry T. Moore. "Three Types of Psychological Rating in Use with Freshmen at Dartmouth," *Sch. and Soc.*, 13: April 2, 1921, 418-420.
8. Goucher College A. L. Rogers. "Mental Tests as a Means of Selecting and Classifying College Students," *J. Ed. Psych.*, 11: 1920, 181-192.  
*Mon. Soc. Coll. Teachers Ed.*, 10: 1921, p. 55. Correspondence with Agnes L. Rogers.
9. Hamline University G. D. Walcott. "Mental Testing at Hamline University," *Sch. and Soc.*, 10: 1920, 57-60.
10. Harvard University R. M. Yerkes and H. E. Burt. "Relation of Point Scale Measurements of Intelligence to Educational Performance in College Students," *Sch. and Soc.*, 5: 1917, 535-40.  
W. F. Dearborn. "The Measurement of Intelligence," *Psych. Bulletin*, 14: 1917, 221-224.
11. Illinois, University of Correspondence with B. R. Buckingham. See also Yoakum and Yerkes, *Army Mental Tests*.
12. Iowa, State University of I. King and J. M'Crory. "Freshmen Tests and the State University of Iowa," *J. Ed. Psych.*, 9: 1918, 32-46.
13. Michigan, University of Writers' personal experience

14. Minnesota, University of  
M. J. Van Wagenen. "Some Results and Inferences Derived from the Use of the Army Tests at the University of Minnesota," *J. App. Psych.*, 4: 1920, 59-72. "Has the College Student Reached his Mental Maturity when he Enters College?", *Sch. and Soc.*, 9: 1919, 663-666.
15. Newcomb, H. Sophie Memorial  
Dagny Sunne. "The Relation of Class Standing to College Tests," *J. Educ. Psych.* 8: 1917, 193-211.
16. Nebraska, University of  
Correspondence with Winifred Hyde.
17. Northwestern University  
W. L. Uhl. "Mentality Tests for College Freshmen," *J. Ed. Psych.*, 4: 1919, 13-28.
18. Ohio State University  
Ellis L. Noble and George F. Arps. "University Students' Intelligence Ratings According to the Army Alpha Tests," *Sch. and Soc.*, 11: February 21, 1920, 233-237.  
Correspondence with J. W. Bridges.  
Daily Bulletin of the University, Jan. 6, 1921.
19. Pennsylvania, University of  
F. H. Reiter. "A Comparison of Test Ratings and College Grades," *Psych. Clinic*, 12: 1919, 221-229. "Educational Events," *Sch. and Soc.*, Nov. 6, 1920.  
George G. Chambers. "Intelligence Tests at the University of Pennsylvania," *Sch. and Soc.*, 10: 1919, 548-549.
20. Purdue, University of  
C. L. Roberts and G. C. Brandenburg. "The Army Intelligence Tests at Purdue University," *Sch. and Soc.*, 10: 1919, 776-778.
21. Reed College  
Eleanor Rowland and Gladys Lowden. "Report of Psychological Tests at Reed College," *J. Exper. Psych.*, 1916.
22. Rochester, University of  
Correspondence with L. A. Pechstein.
23. Rutgers College  
Correspondence with Luther H. Martin. Results to be published in Rutgers' Alumni Quarterly.
24. Southern Methodist College  
H. T. Hunter. "Intelligence Tests at Southern Methodist College," *Sch. and Soc.*, 10: 1919, 437-440.
25. Texas, University of  
M. Calfee. "College Freshmen and Four General Intelligence Tests," *J. Ed. Psych.*, 4: 1913, 223-231.

## 26. Vassar College

H. Baum and Others. "Results of Certain Standard Mental Tests as Related to the Academic Records of College Seniors," *Am. J. Psych.*, 30: 1919, 307-310.

M. F. Washburn. "A Note on the Terman Superior Adult Tests as Applied to Vassar Freshmen," *Am. J. Psych.*, 30: 1919, 310.

27. Washington  
State College of

F. A. Thompson. "College and University Surveys," *Sch. and Soc.*, 5: 1917, 721.

28. Wyoming,  
University of

Correspondence with June Downey.

## 29. Yale

John E. Anderson. "Intelligence Tests of Yale Freshmen," *Sch. and Soc.*, 11: 1920, 417-420.

Correspondence with J. E. Anderson.

# CONSTITUTION OF THE NATIONAL SOCIETY FOR THE STUDY OF EDUCATION

## ARTICLE I

*Name.*—The name of this Society shall be “The National Society for the Study of Education.”

## ARTICLE II

*Object.*—Its purposes are to carry on the investigation and to promote the discussion of educational problems.

## ARTICLE III

*Membership.*—SECTION 1. There shall be three classes of members—active, associate, and honorary.

SEC. 2. Any person who is desirous of promoting the purposes of this Society is eligible to active membership and shall become a member on approval of the Executive Committee.

SEC. 3. Active members shall be entitled to hold office, to vote, and to participate in discussion.

SEC. 4. Associate members shall receive the publications of the Society, and may attend its meetings, but shall not be entitled to hold office, or to vote, or to take part in the discussion.

SEC. 5. Honorary members shall be entitled to all the privileges of active members, with the exception of voting and holding office, and shall be exempt from the payment of dues.

A person may be elected to honorary membership by vote of the Society on nomination by the Executive Committee.

SEC. 6. The names of the active and honorary members shall be printed in the *Yearbook*.

SEC. 7. The annual dues for active members shall be \$2.00 and for associate members \$1.00. The election fee for active and for associate members shall be \$1.00.

## ARTICLE IV

*Officers and Committees.*—SECTION 1. The officers of this Society shall be a president, a vice-president, a secretary-treasurer, an executive committee, and a board of trustees.

SEC. 2. The Executive Committee shall consist of the president and four other members of the Society.

SEC. 3. The president and vice-president shall serve for a term of one year, the secretary-treasurer for a term of three years. The other members of the Executive Committee shall serve for four years, one to be elected by the Society each year.

SEC. 4. The Executive Committee shall have general charge of the work of the Society, shall appoint the secretary-treasurer, and may, at its discretion, appoint an editor of the *Yearbook*.

SEC. 5. A board of trustees consisting of three members shall be elected by the Society for a term of three years, one to be elected each year.



The Board of Trustees shall be the custodian of the property of the Society, shall have power to make contracts, and shall audit all accounts of the Society, and make an annual financial report.

SEC. 6. The method of electing officers shall be determined by the Society.

#### ARTICLE V

*Publications.*—The Society shall publish *The Yearbook of the National Society for the Study of Education* and such supplements as the Executive Committee may provide for.

#### ARTICLE VI

*Meetings.*—The Society shall hold its annual meetings at the time and place of the Department of Superintendence of the National Education Association. Other meetings may be held when authorized by the Society or by the Executive Committee.

#### ARTICLE VII

*Amendments.*—This constitution may be amended at any annual meeting by a vote of two-thirds of voting members present.

# MINUTES OF THE ATLANTIC CITY MEETING OF THE NATIONAL SOCIETY FOR THE STUDY OF EDUCATION

February 26, 1921

With President H. B. Wilson in the chair the Society tried with success the experiment of extending its meeting to two sessions, one for each part of the *Yearbook*, this in the face of most annoying disturbances during the afternoon from the hammers and cartage trucks of commercial exhibitors that surrounded the hall on the Million Dollar Pier where the meetings were held.

About 800 persons attended the first session, Saturday afternoon, 2 to 5 p. m., when the following papers were presented:

THE WORK OF THE SOCIETY'S COMMITTEE ON NEW MATERIALS  
OF INSTRUCTION, by the Chairman of the Committee.

F. J. Kelly, Dean of the School of Education, University of Kansas,  
Lawrence, Kansas.

THE PSYCHOLOGICAL APPROACH TO KINDERGARTEN SUBJECT  
MATTER

Nina C. Vandewalker, Specialist in Kindergarten Education, Bureau of  
Education, Washington, D. C.

SELECTION AND ORGANIZATION OF MATERIAL EMBODIED IN THE  
PRIMARY SECTION

Frances M. Berry, Kindergarten-Primary Supervisor, Baltimore, Maryland

PROJECTS FOR THE FOURTH, FIFTH, AND SIXTH GRADES

Edna Keith, Elementary Supervisor, Joliet, Illinois

THE PROJECT AND THE JUNIOR-HIGH-SCHOOL CURRICULUM

H. P. Shepherd, Principal, Junior High School, Kansas City, Kansas

PROJECT WORK FOR SUBNORMAL CHILDREN

Nellie R. Olson, Faribault, Minn.

SUGGESTED PROJECTS FROM CERTAIN EXPERIMENTAL SCHOOLS

F. D. Slutz, Principal, Moraine Park School, Dayton, Ohio

These papers were discussed by Professors Frank McMurry and W. H. Kilpatrick, of Teachers College, Columbia University, by members from the floor and by Dean Kelly, who had introduced the program. The discussion centered about the use of the

term 'project,' and about the relative emphasis upon 'method' and upon 'curriculum' which the adoption of projects as a characteristic type of educational activity implied.

The evening session was held under more favorable conditions. The noise of the exhibitors had subsided, and the speakers could be heard by the larger audience, some 1400, who assembled at 8 o'clock for the following program:

THE WORK OF THE SOCIETY'S COMMITTEE ON SILENT READING,

By the Chairman of the Committee,  
Professor Ernest Horn, State University of Iowa, Iowa City, Iowa.

THE INFLUENCE EXERTED BY THE OUTWARD FORM OF A BOOK

Florence C. Bamberger, Johns Hopkins University, Baltimore, Maryland.

ANALYSIS OF ABILITY IN READING

S. A. Courtis, Director of Instruction, Normal Training and Research,  
Detroit, Michigan.

THE VALUE OF SPECIFIC QUESTIONS IN SILENT READING

C. E. Germane, Dean of the School of Education, Des Moines University,  
Des Moines, Iowa.

INDIVIDUAL DIFFICULTIES IN SILENT READING

William S. Gray, School of Education, University of Chicago, Chicago,  
Illinois.

The ensuing discussion, which was opened by Dean M. E. Haggerty, of the University of Minnesota, was participated in by Professor H. O. Rugg, Mrs. Sturgis, Dean F. J. Kelly, Dean C. E. Germane, Supt. Opstadt, Miss Fanny Dunn, and others, and concluded by Professor Ernest Horn. While this discussion drifted into consideration of certain technical matters connected with the administration of schoolroom tests, the general merit of the material collected in this part of the *Yearbook* was not lost sight of; it was pointed out, for instance, by Professor Rugg that in contributions of this sort, experimental work has at last come into immediate contact with the problems of the classroom and is yielding valuable principles for the guidance of the teacher's daily work.

At the Business Meeting, held directly after the evening session, the nominating committee appointed by President Wilson submitted the following report, and upon vote of the active members present, the following were unanimously elected:

For *President*, Frederick J. Kelly, University of Kansas, Lawrence, Kansas; for *Vice-President*, Lida Lee Tall, State Normal School, Towson, Maryland; for member of the *Executive Committee*, to fill the unexpired term of Dean F. J. Kelly, J. C. Brown, President of the State Normal School, St. Cloud, Minnesota; for member of the *Executive Committee*, to serve for four years, Professor Henry W. Holmes, Harvard University, Cambridge, Massachusetts; for member of the *Board of Trustees*, to serve for three years, Professor W. W. Charters, Carnegie Institute of Technology, Pittsburgh, Pennsylvania.

The Secretary reported informally to the Society certain matters that had been under discussion by the Executive Committee earlier in the day. Thus, the Committee asked an expression of opinion on the desirability of limiting admission to one of the sessions of the Society to members of the Society. The opinion appeared to be definitely in favor of continuing the present custom of open meetings. Similarly, there seemed to be no desire to alter the plan adopted at the Chicago meeting, to which a few members had protested, of cancelling membership of those whose dues remain unpaid on January 1st. In the matter of *Yearbooks* for 1922, the Committee reported that it seemed undesirable in the present situation to devote an entire *Yearbook* to the topic proposed at the Cleveland meeting, viz.: "The Content of Courses for the Training of Teachers in Normal Schools." The Committee suggested a *Yearbook* on "The Use of Mental Tests in School Administration." Members of the Society were urged to communicate to the Secretary suggestions for other topics of educational concern that might be treated in the *Yearbooks*.

The Executive Committee endorsed the following committee to cooperate with the Division of Psychology and Anthropology of the National Research Council: Messrs. W. C. Bagley, F. W. Ballou, Ernest Horn, H. O. Rugg, and G. M. Whipple, chairman.

At both the afternoon and evening sessions the Secretary explained the aims of the Society and the conditions of membership.

GUY M. WHIPPLE,  
*Secretary-Treasurer.*





# Information Concerning the National Society for the Study of Education

1. **PURPOSE.** The purpose of the National Society is to promote the investigation and discussion of educational questions. To this end it holds an annual meeting and publishes a series of Yearbooks.

2. **ELIGIBILITY TO MEMBERSHIP.** Any person who is interested in receiving its publications may become a member upon application to the Secretary and subsequent approval by the Executive Committee. Membership may not be had by libraries or by institutions.

3. **PERIOD OF MEMBERSHIP.** Applicants for membership may not date their entrance back of the current calendar year, and all memberships terminate automatically on December 31st, unless the dues for the ensuing year are paid as indicated in Item 6.

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Applications for membership will be handled promptly at any time on receipt of name and address, together with check for the appropriate amount (\$3.00 for new active membership, \$2.00 for new associate membership).

GUY M. WHIPPLE, Secretary-Treasurer.

University of Michigan,  
Ann Arbor, Michigan.



# THE TWENTY-SECOND YEARBOOK

OF THE  
NATIONAL SOCIETY FOR THE STUDY  
OF EDUCATION

## PART I ENGLISH COMPOSITION ITS AIMS, METHODS, AND MEASUREMENT

*By*  
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*Edited by*  
GUY M. WHIPPLE, Ph.D.  
*Secretary*

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This Yearbook will be Discussed at the Cleveland Meeting of  
the National Society, Saturday, February 24, 1923  
8:00 p. m.

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## NOTICE

For the Constitution of the National Society for the Study of Education, the List of Active Members, the Minutes of the Chicago Meeting, and the Financial Report of the Secretary-Treasurer, see Part II of the Twenty-Second Yearbook.

ENGLISH COMPOSITION, ITS AIMS, METHODS,  
AND MEASUREMENT

*Earl Hudelson*

## EDITOR'S PREFACE

The measurement movement in education has been furthered by this Society in two important Yearbooks, the Seventeenth Yearbook Part II, in 1918, dealing with "Measurements of Educational Products" and the Twenty-First Yearbook, Parts I and II, in 1922, dealing with Intelligence Tests.

The present Yearbook is another contribution of a more detailed and specific sort to the measurement of educational products. Professor Hudelson's contribution has been accepted gladly because it deals with a school subject of general interest, because it includes samples of material, scales for measurement, and directions for their use that will help the classroom teacher, and because it exhibits a plan of investigation that will command the interest and respect of other investigators—in short, because it embodies that combination of scholarly investigation and practical serviceability that the Society's Yearbooks have sought to secure at all times.

The inclusion in this Yearbook of advance abstracts of the addresses to be made when the Yearbook is discussed is an innovation that we trust will meet with approval from the members of the Society.

G. M. W.



## ACKNOWLEDGMENTS

Whatever merit this study may possess is due primarily to the inspiration and counsel of Dr. Thomas H. Briggs, Professor of Secondary Education, Teachers College, Columbia University. Grateful acknowledgments are due also to Professor Allan Abbott, Teachers College, for his suggestions and assistance; to Professor M. R. Trabue, formerly of Teachers College, for his advice; to the hundreds of high-school English teachers over the country, especially those in West Virginia and in Bloomington, Indiana, for the many hours they devoted to the scoring of compositions; and, finally, to my wife, whose material assistance was considerable, but whose patience and encouragement were inestimable.

## INTRODUCTION

The author was prompted to make this series of studies by the beliefs (1) that a knowledge of what teachers of English composition consider to be their aims and by what methods and how well they succeed in realizing those aims will enable prospective and beginning English teachers to prepare more economically and to plan their courses more confidently; (2) that a knowledge of the importance attached by experienced teachers to the various elements of composition will expedite the training of inexperienced teachers in scoring compositions reliably; (3) that the comparatively new field of objective measurement of composition needs to be explained, reviewed, and justified to uninitiated teachers; and (4) that devices for measuring composition ability are needed for the reliable classification and grading of pupils. He has, accordingly, (1) ascertained and presented the aims which prevail among teachers of composition, the methods employed in realizing those aims, and the degree to which the aims are being realized; (2) revealed the relative weights which composition teachers assign to various elements of composition; (3) explained the need for scientific means of measuring composition objectively and reviewed the development of devices for measuring composition achievement; and (4) defended the measurement of composition ability and furnished objective scales for measuring maximal and typical composition abilities.

## CHAPTER I

### THE AIMS AND METHODS OF TEACHING COMPOSITION

The purpose of this portion of the study is to learn (1) what objectives high-school composition teachers, the country over, profess to be striving for; (2) what methods they claim to employ in attaining these objectives; and (3) to what degree they actually practise their precepts. In order to obtain unprejudiced reactions, the prevailing practices of composition teachers were investigated first.

#### PRACTICES

The following request was sent to the English departments of 240 high schools selected as follows: one University High School, or high school located in a university or college town, in each state; one high school located in the largest city in each state that is not the seat of a university or large college; one high school in a small city in each state; one village or rural high school in each state; a high school in Washington, D. C.; eleven large high schools in or near New York City; and thirty-six other high schools chosen at random from twenty-nine states. In compiling the results the first four kinds of high schools were designated as Class I, Class II, Class III, and Class IV schools, respectively, and the returns from each of the other forty-eight high schools that responded were tabulated under the appropriate one of these four classes.

1. Will you be good enough to select two typical compositions from each year of English in your high school and after you and your pupils have finished with them, send them to me in the accompanying envelope? Please do not select either exceptionally poor or exceptionally good themes. Send those which will best show what you and your pupils ordinarily do with the compositions that they write. Denote on each theme the year it represents.
2. I am sending you three typewritten compositions.<sup>1</sup> Will

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<sup>1</sup>The three typewritten compositions mentioned in Paragraph 2 of this letter are quoted in Section III of the Appendix to this volume and are discussed in Chapter II, pp. 17-20. They were designed to discover what weight teachers assign to thought, structure, and mechanics.

you first assume that these three themes were written by ninth-grade pupils, and score them on the percentile basis (0% to 100%)? Next, will you please score them on the percentile basis, assuming that they were written by twelfth-grade pupils? Finally, will you kindly score the three themes, regardless of who wrote them, on the basis of the Nassau County Composition Scale, a copy of which I have already sent you? Give them the Scale value which they most nearly represent. Do not interpolate values: that is, do not give the three themes any values that do not appear on the Nassau Scale.

One hundred sixty-five responses were received to this request, divided as follows: twenty from Class I schools, fifty-five from Class II schools, sixty-five from Class III schools, and twenty-five from Class IV schools. The replies are tabulated for each class separately and for all schools combined.

An average of two compositions from each year of the high school, or eight in all, was received from each of the one hundred and sixty-five high schools which responded. Evidences indicated that the teachers had followed instructions faithfully by sending original drafts of actual themes which had been read and graded, returned to the pupils, and then recalled by the teachers. Two sets of themes were discarded, and do not, therefore, figure in the results, because they were typewritten revisions and were not accompanied by their original drafts.

#### PRECEPTS

After all responses to the above request had been received, the following questionnaire was mailed to the same teachers:

Will you kindly explain your usual manner of handling composition work by answering briefly the following questions or by writing your explanations on the back of this sheet?

1. According to what time scheme do you divide composition and literature?
2. Do the same teachers teach both composition and literature?
3. How often do you have compositions written?
4. How are your theme subjects chosen?

5. Were the themes which you sent me written in or out of class?
6. Do you mark your pupils' mechanical errors?
7. Do you correct your pupils' mechanical errors?
8. What other qualities do you look for?
9. How do you handle these other qualities?
10. Do you base your theme grades upon general merit, or do you stress one merit at a time?
11. What are your pupils expected to do with their returned themes?
12. Do you have themes rewritten?
13. Which themes, if any, do you have rewritten?
14. Which themes, if any, are handed in a second time?
15. What relation, if any, does your oral composition bear to your written composition?
16. Do your aims in the teaching of composition differ significantly from those expressed in the U. S. Bureau of Education Bulletin No. 2, 1917? (*Report<sup>2</sup> of the Committee on the Reorganization of English*, the relevant portion of which has been extracted, reproduced, and enclosed herewith.)
17. If so, wherein do they differ?

### Interpretations of the Results of the Questionnaire<sup>3</sup>

If the schools which responded are typical of conditions generally, the following conclusions seem justified:

I. The majority of high schools affiliated with, or under the influence of, universities or colleges teach composition and literature alternately by semesters. In all of them English teachers teach both composition and literature. No definite schedule is followed for theme-writing, though "a definite number" of compositions is required, frequently two per week. In such high schools literature is the chief source of composition topics, though some are based upon pupils' interests, experiences, and observations. The teacher frequently imposes the topic, especially when literature is the basis

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<sup>2</sup>The excerpt from U. S. Bureau of Ed. Bul. No. 2, 1917, referred to in question 16, is quoted in Section I of the Appendix, with the permission of the Chairman of the Committee which drafted the Report.

<sup>3</sup>For the tabulated results of this questionnaire the reader is referred to the Appendix, Section II.



of composition. All of the English teachers in these schools call the attention of their pupils to mechanical errors, but only one-fourth of these teachers actually correct such errors. Thought and originality are the other qualities considered of most importance by the teachers, with rhetorical principles, neatness, fidelity to assignment, and "style" receiving considerable attention. Suitable assignments, revision, admonition, and praise are the methods used equally often in realizing these four qualities. In one-half of these high schools general merit is striven for in composition work; one-fourth of the pupils are taught one merit at a time; while in the rest of the schools the procedure varies depending upon the topic and the class. All of the pupils in these schools are expected to note and correct their mistakes and weaknesses and to file their themes either in their own notebooks or in their classrooms. The pupils are required to rewrite carelessly written original drafts; faulty portions of otherwise good compositions must frequently be revised, and sometimes all efforts must be rewritten. The vague standard of "too many mistakes" regulates the verdict of one-third of the teachers in these schools, while another third follows the personal standard of requiring second drafts of "all themes which need it." Carelessly written compositions, rewritten ones, and sometimes all themes of whatever quality must be handed in a second time. In these schools the only relation which oral composition bears to written seems to be in cases where the written production is based upon oral fore-exercises. The aims of composition teaching in these schools differ from those expressed in the "Report on the Reorganization of English" only in that they pay more attention to weak pupils than the Report seems to these teachers to recommend.

II. In the large city high schools of this country composition and literature are divided according to various time schemes; the two are assigned an equal or nearly equal amount of time in most of the schools. All of these teachers likewise teach both composition and literature. Themes are assigned weekly in most cases, though two compositions per week are frequently called for, besides informal class exercises. In this type of high school, though a third of the teachers dictate theme topics in whole or in part,

nearly half of the pupils may base their writing upon readings, current events, interests, experiences, and observations. In the few cases where teachers do not designate pupils' mechanical errors the pupils are charged with the responsibility of doing it for each other. Nearly half of these teachers to some extent correct their pupils' errors; about one-third profess to do it regularly. Rhetorical principles receive first consideration, with thought and originality combined barely holding their own. Interest receives scant attention. These qualities are taught chiefly by means of models, supplemented by class discussions, suggestions, and conferences. An equal number of these teachers strive for general merit and one proficiency at a time, but the majority of teachers who vary in their emphases favor general merit. Here, again, the usual procedure is for pupils to note and correct the errors which have been denoted but not corrected, and file their themes either in the classroom or in their own notebooks. The pupils, however, are frequently cautioned against repeating their mistakes. They are sometimes required to rewrite their illegible, careless, and very inferior themes and hand in these second drafts. The relation between oral and written expression seems to be closer in this case, though the only connection definitely stated is the one mentioned in Class I schools. Teachers in the large city high schools almost unanimously accept, and profess to act upon, the aims set forth in Bulletin No. 2, 1917. A small minority claim to stress mechanics and structure more.

III. Among the high schools located in small cities a third of the teachers devote an equal amount of time to composition and literature, one-fourth give two days per week to composition and three to literature, while one-fourth alternate by semesters. The rest observe various time schemes. They all teach both composition and literature. The prevailing composition program calls for one theme a week, selected by the teacher, and based upon pupil interests, experiences, observations, and readings, or related to "topics in the text." All mechanical errors are denoted by these teachers but seldom corrected by them. Rhetorical niceties decidedly dominate instruction in these composition classes, though

originality, thought, and interest receive some consideration. Models, again, are the chief means of attaining these qualities, supplemented, as before, by discussions and suggestions. General merit is almost unanimously sought by these teachers. Here, again, the pupils are expected to observe, correct, and profit by their mistakes, then file their themes in their own repositories. They are sometimes required to rewrite careless or otherwise inferior productions and hand in these second attempts. Written themes are often based upon previous oral composition, with identical or closely related aims actuating both. In the few cases where exception is taken to the aims established in the Report, thought, individual conferences, and "decent English" are given more emphasis.

IV. Forty percent of the English teachers in the village or rural high schools devote approximately equal time to composition and literature. A significant number, however, alternate, refusing to allow composition to interrupt a classic until they have finished with it. All of these teachers likewise teach both composition and literature. One, two, or three themes are required each week by some of them, but bi-weekly compositions prevail. The few theme assignments that are not dictated by the teachers are virtually controlled by them, in that the themes must be based upon either readings, experience, or "topics in the text." Practically all teachers in these schools denote their pupils' mechanical errors, and the majority of them correct such errors. Rhetorical principles, originality, neatness, interest, and thought constitute the other qualities striven for, with rhetorical excellencies far the favorite. These are taught by means of class discussions chiefly, supplemented by conferences and outlines. General merit is the usual objective, though in some schools emphasis is occasionally put upon one quality at a time, and a few teachers endeavor to maintain all old standards while introducing a new one in each written exercise. In these schools the pupils are also expected to note and correct their errors, but in this case they are to file their themes in the classroom after rewriting the careless and inferior ones and those in which a particular point has been stressed by the teacher. In the few schools

which recognize a relation between oral and written composition the latter is based upon the former because the teachers accept an identity of aims. The few who modify the aims published in Bulletin No. 2, 1917, pay more attention to originality and employ projects in their teaching.

V. Taken all together, regardless of size or location, most of the high schools of this country follow one of these schemes in distributing instruction between composition and literature: composition two-fifths, literature three-fifths; half and half; composition three-fifths, literature two-fifths; and alternating by semesters. Every teacher who replied to the questionnaire teaches both subjects—several of them complained in letters that a passing or failing grade in one subject necessitated the same grade in the other. Weekly themes are the standard, with two per week ranking second. Composition topics arise from the teacher more often than from any other source, though pupil interests, experiences, and observations are frequently the basis of written work, and assignments are sometimes related to literary readings. Practically all teachers designate their pupils' mechanical errors but do not correct them if the pupils themselves are able to do so. Emphasis in teaching composition is decidedly upon rhetoric, with considerable attention, however, paid to originality and with some stress laid upon thought, interest, style, and neatness. Models, class discussions, and conferences are the main devices used in attaining the desired accomplishments. General merit is commonly striven for in composition teaching. Pupils who write carelessly, illegibly, or poorly are ordinarily required to note and correct their errors or rewrite their themes, file the first drafts either in their notebooks or in the classroom, and hand in their improved versions. The only significant, functioning way in which oral and written composition are related is by having written work based upon oral prevision. The few teachers who depart at all from the composition aims established by the Committee on the Reorganization of English lay an equal amount of added emphasis upon mechanics, originality, "decent English," individual conferences, structural accuracy, thought, and inferior pupils.



## RECAPITULATION

A comparison, by questions, of the modes of the various Classes of high schools with each other and with all schools can probably be more expeditiously made by means of the following scheme. When two or more tendencies are equally, or nearly equally, distinct, they are listed coordinately.

## Question 1

According to what time scheme do you divide composition and literature?

Class I. Alternate by semesters; comp. 1 day per week, lit. 4.

Class II. Comp. 2 days per week, lit. 3; comp. 3 days per week, lit. 2; half and half.

Class III. Comp. 2 days per week, lit. 3; half and half; alternate by semesters.

Class IV. Comp. 2 days per week, lit. 3.

All. Comp. 2 days per week, lit. 3; half and half; alternate by semesters.

## Question 2

Do the same teachers teach both composition and literature?

I. Yes. II. Yes. III. Yes. IV. Yes. All. Yes.

## Question 3

How often do you have compositions written?

I. No definite schedule. II. Weekly. III. Weekly. IV. Bi-weekly. All. Weekly.

## Question 4

How are your theme subjects chosen?

I. From literature.

II. From pupil interests, observations, and experiences.

III. By teacher; from pupil interests, observations, and experiences.

IV. By teacher.

All. By teacher; from pupil interests, observations, and experiences.

## Question 6

Do you mark your pupils' mechanical errors?

I. Yes. II. Yes. III. Yes. IV. Yes. All. Yes.

## Question 7

Do you correct your pupils' mechanical errors?

I. No. II. No. III. No. IV. No. All. No.



## Question 8

What other qualities do you look for?

- I. Thought and originality. II, III, IV, and All. Rhetorical principles.

## Question 9

How do you handle these other qualities?

- I. By suitable assignments, revision, warning, and commendation.  
II. By use of models.  
III. By use of models.  
IV. Through class discussions.  
All. By use of models.

## Question 10

Do you base your theme grades upon general merit, or do you stress one merit at a time?

- I. General merit. II. Equal emphasis upon both. III. General merit. IV. Varies. All. General merit.

## Question 11

What are your pupils expected to do with their returned themes?

- I. Note and correct errors.  
II. Note and correct errors; avoid repeating them; file themes either in individual notebooks or in classroom.  
III. Note and correct errors; file themes in notebooks.  
IV. Note and correct errors; file themes in classroom.  
All. Note and correct errors.

## Question 12

Do you have themes rewritten?

- I, II, and III. Sometimes. IV. Yes. All. Sometimes.

## Question 13

Which themes, if any, are rewritten?

- I. Careless ones and all others which, because of errors, need it.  
II. Careless, illegible, and inferior themes.  
III. Careless themes.  
IV. Careless themes.  
All. Careless themes.

## Question 14

Which themes, if any, are handed in a second time?

- I. All rewritten ones; poor ones; careless ones. II, III, IV, and All. All rewritten ones.

## Question 15

What relation, if any, does your oral composition bear to your written composition?

- I. None; oral exercises sometimes turned into written.
- II. Very little.
- III. Oral exercises frequently turned into written.
- IV. Very little.
- All. Oral exercises sometimes turned into written.

## Question 16

Do your aims in the teaching of composition differ significantly from those expressed in U. S. Bureau of Education Bulletin No. 2, 1917?

- I, II, III, IV, and All. No.

## Question 17

If so, wherein do they differ?

- I. Stress poor pupils more.
- II. Stress mechanics and structural accuracy more.
- III. Stress "decent English," thought, and individual conferences more.
- IV. Stress projects and originality more.
- All. More emphasis upon mechanics, originality, "decent English," individual conferences, projects, structural accuracy, thought, and inferior pupils.

## PRECEPT AND PRACTICE

The results of a comparison of the claims made by composition teachers and their actual practices are complimentary to the teaching profession. The compositions which were submitted, the answers to the questionnaire, and the voluntary letters or comments which accompanied nearly every reply show that teachers of composition not only practise what they preach, but believe what they preach and practise. However sound, their precepts and effective their methods, they are conscientious and sincere. Not a single answer seemed affected, not an attitude feigned. Quantities of extra-curricular material were received which indicated clearly that the principles which these teachers profess to be inculcating, however idealistic they seem, are, on the whole, actually functioning.

To show how closely the teachers' claims agree with their practices, four comparisons are here made. Before the filled-out ques-

tionnaires were returned, every composition which had been received was reviewed carefully and reactions to it recorded. Four typical reactions, one from each class of schools, are given below, together with the questionnaire replies which were later received from the teachers whose pupils wrote the themes. The numbering follows that of the questions in the questionnaire.

From a Class I School

Reactions of reviewer: "Eight themes. Graded on percentage basis. Average quality. Chief emphasis apparently on mechanics. Every error or weakness denoted on margin, marked within the line, and then meticulously corrected by the teacher. Even omitted words are inserted by teacher, and whole paragraphs revised in margin or on back of sheet. Topics either stipulated by teacher or taken from some textbook list (*e. g.*, 'Biography of a Squirrel.') Terse and usually general comments at end of theme, such as 'Ideas good,' 'Composition careless in some places,' 'Good ideas; spelling poor.' "

Teacher's answers to questionnaire:

1. So many weeks of composition, so many weeks of literature during each semester.
2. Yes.
3. A certain definite number are required in each course.
4. By the teacher.
5. The assignments were made in class, the writing was done outside.
6. Yes.
7. Yes.
8. Neatness, understanding of assignment, etc.
9. Rewrite careless themes. Watch for similar errors in succeeding themes, and stress their correction.
10. General merit.
11. File them in classroom until end of semester.
12. Careless themes are rewritten at option of the teacher.
13. See above.
14. Those rewritten on account of carelessness.
15. None.
16. They exactly coincide.

From a Class II School

Reactions of reviewer: "Ten themes. Above standard in quality. Based upon pupil interest and experiences. Frequent references to literature and applications to literary characters. Teacher discriminating and just in admin-

istering favorable and unfavorable criticisms. In matters of taste corrections were made on theme by teacher. An occasional query as to choice of words. Errors in structure indicated but rarely corrected by teacher. Spelling, punctuation, and typographical slips usually actually corrected. Symbols frequently employed to designate type of error. Constructive comments at end of one theme. Pupils given conference appointments by notes at end of themes. On three themes attention called to literary models illustrating merits which the pupils have failed to achieve. One classmate's theme cited as a model to another pupil. One note refers pupil to exact reference in text to his weakness. A carelessly prepared theme asked to be returned. Misspelling of *perspiration* apparently unnoticed. An outline precedes one theme—a narration. This outline, the teacher explained to pupil, was demanded because of child's failure to observe proportion and because of his chronic lack of sequence sense. Themes scored on basis of 1 to 15. Reliably graded. Neat manuscripts, except in one case."

Teacher's answers to questionnaire:

1. Composition basis of first two years' work; literature basis of third and fourth years.
2. Yes.
3. Two formal themes a month, besides class exercises.
4. From life interests; from topics related to their school life.
5. Out of class.
6. Yes.
7. Yes, or require them to after theme conference.
8. References to literature we have read; development of topic sentence; some appreciation of style.
9. By reading to class the themes strong in these other qualities; by commenting on the beauty given by the literature, the adaptation of style to subject-matter, etc.
10. First semester, 'sentence feeling'; second semester, paragraph development. In lower semesters, progressive order of attack; in higher semesters, combined attack.
11. Ordinarily we have them filed. Lately, however, because we lost our building by fire, pupils have been asked to take charge of them.
12. Sometimes.
13. Those requiring special stress on fundamentals.
14. Those rewritten.
15. We have 'forums' and other projects to encourage easy, forceful speaking. Later these discussions are often written in the form of editorials, etc.
16. No.

## From a Class III School

Reactions of reviewer: "Eight compositions. Vary widely in quality. Graded A, B, C, etc. Probably scored too high. Very few teacher's marks of any kind on themes. Numerous glaring errors ignored. Teacher commented on two themes, 'Watch for criticisms in class.' Themes based upon literature, newspaper articles, book reviews, letters to famous historical characters, and two human interest stories. All fairly well written, except one of the stories, which is very poor. Manuscripts well put up. Mechanics otherwise poor. Style fluent, original, and confident."

Teacher's answers to questionnaire:

1. About half and half; possibly a little more emphasis on literature.
2. Yes.
3. One per week.
4. From readings and from our everyday experiences.
5. Out of class.
6. As far as possible.
7. Not if pupil is able to do it.
8. Originality, style, rhetorical principles, etc.
9. Compare pupils' themes with each other and with masterpieces.
10. Usually general merit.
11. File in notebooks and keep.
12. Sometimes; usually corrected as they are being read and criticised by pupils and teacher in class.
13. Carelessly written ones; very poor ones.
14. Rewritten ones.
15. Same emphasis as far as possible. Sometimes we convert oral exercises into written and written into oral, the better to detect certain weaknesses.
16. Aims are essentially the same.

## From a Class IV School

Reactions of reviewer: "Six themes. Expression unequivocal and vivid. Material well organized. Themes interesting. Of about average quality for the grades they represent. Themes based upon literature and upon pupil experiences and interests, such as 'Clean-Up Day,' 'The Need of a New High School,' human interest stories, and actual child experiences. All errors in thought, structure, and mechanics noted by teacher, but very few corrections suggested. Pupils have corrected their errors and remedied their other defects, and have listed their weaknesses on a separate sheet. All corrected themes have been returned to teacher for her O. K."



## Teacher's answers to questionnaire:

1. About half time to each.
2. Yes.
3. Two each month.
4. Experiences, literature studied, and titles, etc., from text.
5. Out of class.
6. Yes.
7. No.
8. Good word usage, clearness, interest, and organization.
9. Oral discussions and outlines.
10. General merit.
11. Make a list of their mistakes and return both papers to me. They are expected to correct all errors marked on themes.
12. Yes.
13. Very poor ones.
14. All.
15. Practically none.
16. No.

A further comparison of these evidences with the teachers' scores on the three themes quoted in Section III of the Appendix merely emphasizes the consistency between the teachers' claims and their practices. The teacher, for example, from the Class I School, quoted above, laid chief stress upon mechanics in her eight reviewed themes, and acknowledged this fact in her questionnaire replies. Her scores on the three mimeographed themes were as follows:

## Teacher from Class I School

	Percentage Score for 9th Grade	Percentage Score for 12th Grade	Nassau Scale Ratings
A. Commendable version . . . . .	95	85	7.2
B. Structurally weak version . . . . .	80	40	6.0
C. Mechanically weak version . . . . .	70	30	5.0

The teacher was obviously consistent in that she regularly penalized bad mechanics more than she did approximately equally bad structure. By comparing in the same way the data of the teachers from the other three classes of schools with their scores given below it will be seen that they are equally consistent.

## Teacher from Class II School

	Percentage Score for 9th Grade	Percentage Score for 12th Grade	Nassau Scale Rating
A. Commendable version . . . . .	98	80	7.2
B. Structurally weak version....	60	40	3.8
C. Mechanically weak version...	70	50	5.0

## Teacher from Class III School

	Percentage Score for 9th Grade	Percentage Score for 12th Grade	Nassau Scale Rating
A. Commendable version . . . . .	94	82	7.2
B. Structurally weak version....	62	48	3.8
C. Mechanically weak version...	85	80	6.0

## Teacher from Class IV School

	Percentage Score for 9th Grade	Percentage Score for 12th Grade	Nassau Scale Rating
A. Commendable version . . . . .	98	90	9.0
B. Structurally weak version....	70	50	3.8
C. Mechanically weak version...	68	50	3.8

## CONCLUSIONS

1. Apparently composition teachers the country over are acting upon the theories which they hold, are practising the methods which they profess to be employing, are doing, in short, what they claim to be doing.

2. The majority of high-school English teachers are striving to secure general merit in the compositions which their pupils produce.

3. Rhetorical principles receive most emphasis in composition teaching.

4. Composition and literature are taught by the same teachers.

5. Equal or nearly equal time is being spent upon composition and literature.

6. Most use is being made of, and best results are being obtained from, bi-weekly themes.

7. Practically all compositions are filed either in the classroom or in individual notebooks. These files are apparently not consulted afterwards.

8. Errors and weaknesses are seldom corrected by the teacher, except in matters of taste, questions demanding nice judgment, or cases involving unfamiliar principles.

9. Models, both pupil and literary, are widely employed in establishing habits of good writing.

10. English teachers recognize practically no fundamental, functioning relation between oral and written composition.

11. Carelessness is generally considered a capital offense, for which the customary penalty is revision.

12. The aims of composition teaching as set forth in *U. S. Bureau of Education Bulletin No. 2, 1917*, are widely known, generally accepted, and deliberately departed from only in few and comparatively minor details.

## CHAPTER II

### WHAT TEACHERS CONSIDER IN COMPOSITION

To discover what weight teachers assign to the various elements of composition, two studies were made, the second an elaboration of the first.

#### THE A-B-C STUDY

Three well-written themes, adjudged by eighty-eight scorers trained in the use of composition scales to be of practically equal merit,<sup>1</sup> were selected as a basis for this preliminary investigation.

These commendable versions, numbered 1A, 2A, and 3A, were rendered structurally faulty and numbered 1B, 2B, and 3B. Next the original versions were rendered mechanically weak and numbered 1C, 2C, and 3C. The three themes lettered A, then, represent good composition; the three B specimens are structurally faulty, but otherwise good; while the three C samples are commendable in all other respects, but weak mechanically. While no strictly scientific means were used, expert opinion was resorted to in an effort to have all faulty versions 'spoiled' equally.

The nine compositions were next arranged so that each judge scored a different version of each of the three original themes. That is, one-third of the judges scored specimens 1A, 2B, and 3C; one-third scored specimens 2A, 3B, and 1C; while the other one-third scored specimens 3A, 1B, and 2C. The nine themes, together with the letter which accompanied them, can be found in Section III of the Appendix, just as they were mailed to teachers. In this letter, it may be explained here, the recipient was asked to score the three themes: (1) on a percentage basis (0 to 100) with the assumption that they were written by ninth-grade pupils; (2) on a percentage basis with the assumption that they were written by twelfth-grade pupils; (3) on the basis of the Nassau County Composition Scale.

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<sup>1</sup>Their values were 7.4, 7.45, and 7.64, respectively, on the Hudelson Scale.

TABLE I—MEDIAN SCORES GIVEN BY COMPOSITION TEACHERS TO THE NINE THEMES USED IN THE A-B-C STUDY  
(Showing Comparative Weights Assigned to Various Composition Elements)

Theme No.	9th Grade Percent Score	12th Grade Percent Score	Nassau Scale Score	Theme No.	9th Grade Percent Score	12th Grade Percent Score	Nassau Scale Score	Theme No.	9th Grade Percent Score	12th Grade Percent Score	Nassau Scale Score
1A	92	79.5	7.20	2A	92	80	7.3	3A	95.0	86	7.9
1B	50	23	3.45	2B	53	26	4.2	3B	62.5	34	4.4
1C	71	50	5.20	2C	58	37	4.4	3C	64.5	45	4.9

A=commendable version; B=structurally weak; C=mechanically faulty

TABLE II—AVERAGE DEVIATIONS FOR TABLE I

Theme No.	9th Grade Percent	12th Grade Percent	Nassau Scale	Theme No.	9th Grade Percent	12th Grade Percent	Nassau Scale
1A	7.5	10.5	0.66	2A	8.5	9.7	1.1
1B	20.7	19.0	1.8	2B	17.0	17.5	1.2
1C	10.5	15.8	1.2	2C	18.8	19.8	1.4

Theme No.	9th Grade Percent	12th Grade Percent	Nassau Scale
3A	6.7	7.1	0.67
3B	14.1	17.2	1.2
3C	15.5	17.2	1.3



In rotating order one of these three sets of three compositions each was sent to the English department in each of the 240 high schools referred to in Chapter I. Reactions to the 1A-2B-3C set were received from 76; to the 2A-3B-1C set from 72; and to the 3A-1B-2C set from 82 teachers. The median score for each version of each of the nine themes is given in Table I, while the average deviations are shown in Table II.

### Interpretations

By the results these significant facts are revealed:

1. Though the teachers participating in this study were not all trained in the use of a composition scale, they were numerous enough and their judgments were reliable enough to warrant definite conclusions. Their median scale judgments on the commendable versions of the three themes were almost identical with those of the eighty-eight carefully trained judges who had previously scored them. It may be assumed, then, that the judgments in the percentage scorings, while probably less reliable, are reasonably dependable.

2. Teachers of composition attach more importance to structure than to mechanics. A heavier penalty was consistently inflicted upon the structurally weak themes than upon those mechanically faulty. While the correct versions may not have been equally mutilated in these two respects, in view of the care exercised in spoiling them it is improbable that this inequality could account for the marked difference in weight accorded the two doctored versions.

3. This condemnatory attitude toward structural violations is more marked in the twelfth-grade scorings than in the ninth. Teachers' comparatively increasing leniency toward mechanical errors in the upper years of the high school may account for the persistence of such weaknesses in the compositions of high-school graduates and college students.

4. While the same discrimination is made between structural and mechanical faults when scored by the use of a scale, the prejudice is not so marked.

5. Considered either vertically or horizontally, the results in Table I show teachers to be surprisingly consistent in their judgments of compositional merit, whether the compositions be scored on a percentage basis or by the use of an objective scale.

6. There is some evidence in Table I that a teacher's sense of relative values is disturbed by his having to consider these big aspects of composition separately. These teachers, at least, failed to maintain the relationship between the three samples of either spoiled version and the original series as unerringly as they did that between the correct specimens and the values which trained judges assigned to them. This may, as far as Table I indicates, have been due to unequal mutilations; but that explanation is refuted by the results shown in Table II. A comparison of the average deviations reveals that teachers are more sure of their judgments on all-round, typical pupil productions than they are when themes emphasize a few coarse, elemental divisions. It seems to be easier, in other words, for the rank and file of teachers to judge general merit than to evaluate such aspects as thought, structure, and mechanics. Teachers find it difficult to agree upon how much penalty to attach to these weaknesses. There is less agreement upon the seriousness of faulty mechanics than upon the enormity of structural weaknesses. Teachers are a little less sure of what relative weight to assign to structure and mechanics in the twelfth grade than they are in the ninth.

7. The use of an objective scale designed to measure general composition merit does not increase one's reliability in judging compositions semi-analytically. Such a scale is of distinct advantage, however, in estimating general merit.<sup>2</sup>

### THE "91" STUDY

The "A-B-C" study observed only crude, general distinctions between composition elements. In order to discover in more detail what composition factors teachers consider and how much importance they attach to each factor, this further investigation was

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<sup>2</sup>For indisputable evidence of this, consult Van Wageningen's admirable defence of objective composition scales in *School and Society*, Vol. XI, No. 276. April 10, 1920, pp. 441-450.

made. Thought, structure, and mechanics were subdivided into their several component elements, each element studied separately, and all elements compared. Seven original pupil themes of known value and of varying degrees of merit were 'spoiled' in twelve different ways, one way at a time. These spoiled versions, together with the seven original themes, were shuffled and then mimeographed. The ninety-one compositions were scored by 180 or more judges in the same ways explained in the A-B-C study. In the present case, however, each judge had been carefully trained in the use of objective measurements and was known to have an average deviation of not more than .5, or one step on the Hudelson Scale. The reliability of the judges was further established by comparing their median scores on the seven original themes with the median judgments on the same seven themes of the ninety-six trained judges whose scores were used in devising the Hudelson Scale. Though the median judgments of the two groups varied slightly on certain themes, the average scale score for the seven compositions was exactly the same for both groups—3.9.

One half of the judges scored the ninety-one themes in a given order, while the other half scored them in reverse order.

The following procedure was employed in devising the set of ninety-one themes. First, the seven original pupil compositions were selected and faithfully reproduced; then each of these seven themes was modified in one respect at a time, the other original qualities always remaining intact. For example, when the thought in the seven original productions was rendered obscure, the integrity of all the other qualities was maintained; then when the rules of unity were violated, the original degree of clearness was restored. The thirteen versions of each of the seven themes which composed the set of ninety-one were as follows:

1. Original versions.
2. Original versions, with clearness obscured.
3. Original versions, with unity violated.
4. Original versions, revamped into incomplete sentences.
5. Original versions, containing difficult words misspelled.
6. Original versions, expressed in "staccato" sentences.
7. Original versions, rendered grammatically faulty.
8. Original versions, "stepped up" into ornate diction.

9. Original versions, improved generally.
10. Original versions, containing easy words misspelled.
11. Original versions, expressed in run-on sentences.
12. Original versions, embodying words in their wrong forms.
13. Original versions, faulty as to punctuation and capitalization.

Scientific methods were employed in making all 'spoilings' equally serious. In the matter of misspelled words, for instance, an equal number of difficult words was misspelled in version five of each of the seven themes, and an equal number of easy words was misspelled in each case in version ten. Moreover, all of the misspelled words in version five were equally difficult, and all in version ten were equally easy.<sup>3</sup> With respect to the rhetorical qualities, each was manipulated until, in the opinion of expert judges, equally serious damage was inflicted on each and all qualities. The same number of violations of one rule or another was committed in each theme. One of the seven original themes appears in its thirteen versions in Section IV of the Appendix. The reader may find it profitable to glance at these spoiled themes in order to gain a better idea of the nature of the material upon which the results of this investigation are based.

### The Results

Table III gives for each version (1) the median percentage scores of the 186 judges who scored the ninety-one themes on the basis of ninth-grade productions; (2) the median percentage scores of 185 of the same judges who scored from the standpoint of twelfth-grade compositions; (3) the median judgments of 180 of the same judges who scored by the use of the Hudelson Scale; and (4) the average score and average deviation for each set of seven themes on each of the three scorings. Table IV shows the rank order of the averages of the various versions by each of the three methods of scoring. Table V shows similar rank order for the average deviations. The results of the scoring are also presented graphically in Figs. I to IV.

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<sup>3</sup>For spelling difficulties, recourse was had to the Seven S Spelling Scales, *Teachers College Record*, September, 1920.



TABLE III—PERCENTAGE AND SCALE SCORES, AVERAGES, AND AVERAGE DEVIATIONS FOR THE NINETY-ONE THEMES, ARRANGED BY VERSIONS

	Theme No.	9th-Grade	12th-Grade	Hudelson Scale Score
		Per-centage Score	Per-centage Score	
Version 1 (Original)	1	71	52	4.6
	14	77	67	5.2
	27	68	46	4.0
	39	73	60	5.2
	50	66	47	3.6
	60	32	12	2.0
	66	40	19	2.5
	Aver.	61	43.3	3.9
	A. D.	14.3	15.9	1.0
Version 2 (Clearness obscured)	91	32	14	2.1
	2	44	24	2.9
	15	45	23.5	2.4
	28	48	32	2.9
	40	47	23	2.7
	51	43	25	2.2
	61	32	13	2.2
	Aver.	41.6	22.1	2.5
	A. D.	5.5	4.4	0.3
Version 3 (Unity violated)	67	74	60	5.2
	76	63	45	4.1
	3	52	33	3.5
	16	85	74	6.7
	29	81	69	5.9
	41	46	30	2.6
	52	61	41	3.5
	Aver.	66	50.3	4.5
	A. D.	12.0	14.8	1.2
Version 4 (Incomplete sentences)	53	61	43	3.6
	65	59	34	3.4
	77	62	47	3.8
	4	68	44	4.5
	17	65	46	3.9
	30	57	36	3.2
	42	60	41	3.8
	Aver.	61.4	41.6	3.7
	A. D.	2.9	3.9	0.3
Version 5 (Difficult words misspelled)	43	75	61.5	5.0
	54	74	63	5.1
	64	72	61	5.0
	78	82	72	6.0
	5	76	63	5.3
	18	67	53	4.5
	31	81	69	6.1
	Aver.	75.3	63.2	5.3
	A. D.	3.8	4.1	0.4
Version 6 (“Staccato” sentences)	32	83.5	73	6.0
	44	69	52	4.3
	55	73	58	4.7
	68	71	53	4.5
	83	68	43	4.0
	6	53	33	3.6
	19	70	56	4.9
	Aver.	69.6	52.6	4.6
	A. D.	5.4	8.5	0.5
Version 7 (Grammatically faulty)	20	66	41	4.0
	33	60	40	3.2
	45	55.5	35	3.6
	56	65	42	4.1
	70	60.5	41	3.4
	84	46	23.5	3.0
	7	55	37	3.9
	Aver.	58.3	37.1	3.6
	A. D.	5.2	4.6	0.3
Version 8 (Ornate diction)	8	77	66	6.2
	21	75	62	5.7
	34	73	56	5.2
	46	79	68	5.9
	57	69	60	5.0
	71	71	57	5.0
	85	76	63	5.4
	Aver.	74.3	61.7	5.5
	A. D.	2.8	3.5	0.4
Version 9 (Improved generally)	86	83	74	6.2
	9	86	75	6.2
	22	91	82	6.8
	35	92	83	7.0
	47	89.5	81	6.8
	58	85	76	6.2
	74	87	78.5	6.8
	Aver.	87.6	78.5	6.6
	A. D.	2.7	2.9	0.3
Version 10 (Easy words misspelled)	79	73	62	5.0
	87	73	61	5.0
	10	78	67	5.3
	23	82	69	5.6
	36	75	60	4.6
	48	60	43	3.6
	59	74	64	5.9
	Aver.	73.6	61	5.0
	A. D.	4.3	4.9	0.5



TABLE III—Continued

	Theme No.	9th-Grade	12th-Grade	Hudelson Scale Score		Theme No.	9th-Grade	12th-Grade	Hudelson Scale Score
		Per-cent-age Score	Per-cent-age Score				Per-cent-age Score	Per-cent-age Score	
Version 11 (Run-on sentences)	72	78	69	5.3	Version 12 (Wrong forms)	82	60	34	3.8
	80	64	42	3.5		73	64	44	3.9
	88	75	58	4.8		81	63	45	3.9
	11	67	50	3.7		89	74	60	5.0
	24	73	56	5.0		12	70	54	4.3
	37	68.5	51	3.8		25	58	32	3.0
	49	60	40	3.6		38	68	54	4.2
	Aver.	69.3	52.3	4.2		Aver.	65.3	46	4.0
	A. D.	5.1	7.2	0.7		A. D.	4.6	8.4	0.4
Version 13 (Punctuation and capitalization)					Version 13 (Punctuation and capitalization)	62	39	23	2.6
						69	57	36	4.6
						75	64	43	3.6
						63	51	27	3.2
						90	49.5	24	3.1
						13	62	33.5	3.3
						26	52	23	3.1
						Aver.	53.5	29.9	3.3
						A. D.	6.4	6.6	0.4

TABLE IV—RANKINGS, FROM HIGHEST TO LOWEST, OF THE AVERAGE SCORES OF THE VARIOUS VERSIONS FOR EACH OF THE THREE SCORINGS

Versions	Ninth-Grade Percentage Ranking	Twelfth-Grade Percentage Ranking	Hudelson Scale Ranking
Original.....	10	9	9
Obscure.....	13	13	13
Unity violated.....	7	7	6
Incomplete sentences.....	9	10	10
Difficult words misspelled.....	2	2	3
"Staccato" sentences.....	5	5	5
Grammatically faulty.....	11	11	11
Ornate diction.....	3	3	2
Well-written.....	1	1	1
Easy words misspelled.....	4	4	4
Run-on sentences.....	6	6	7
Wrong forms.....	8	8	8
Punctuation and capitalization.....	12	12	12

TABLE V.—RANKINGS, FROM LOWEST TO HIGHEST, OF THE AVERAGE DEVIATIONS ON THE VARIOUS VERSIONS FOR EACH OF THE THREE SCORINGS

Versions	Ninth-Grade Percentage Ranking	Twelfth-Grade Percentage Ranking	Hudelson Scale Ranking
Original.....	13	13	12
Obscure.....	10	5	1.5
Unity violated.....	12	12	13
Incomplete sentences.....	3	3	1.5
Difficult words misspelled.....	4	4	8
"Staccato" sentences.....	9	11	10
Grammatically faulty.....	8	6	4
Ornate diction.....	2	2	5
Well-written.....	1	1	3
Easy words misspelled.....	5	7	9
Run-on sentences.....	7	9	11
Wrong forms.....	6	10	6.5
Punctuation and capitalization.....	11	8	6.5

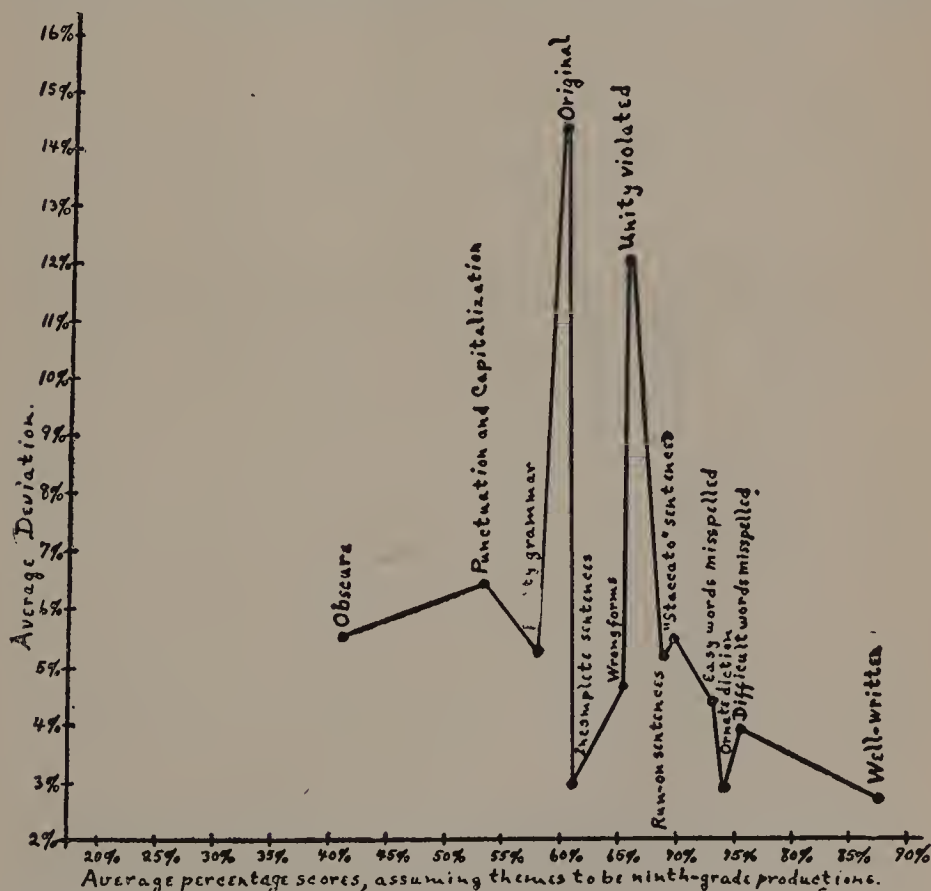


FIG. I.—RELATION BETWEEN AVERAGE AND AVERAGE DEVIATION IN "91" STUDY, NINTH-GRADE SCORING

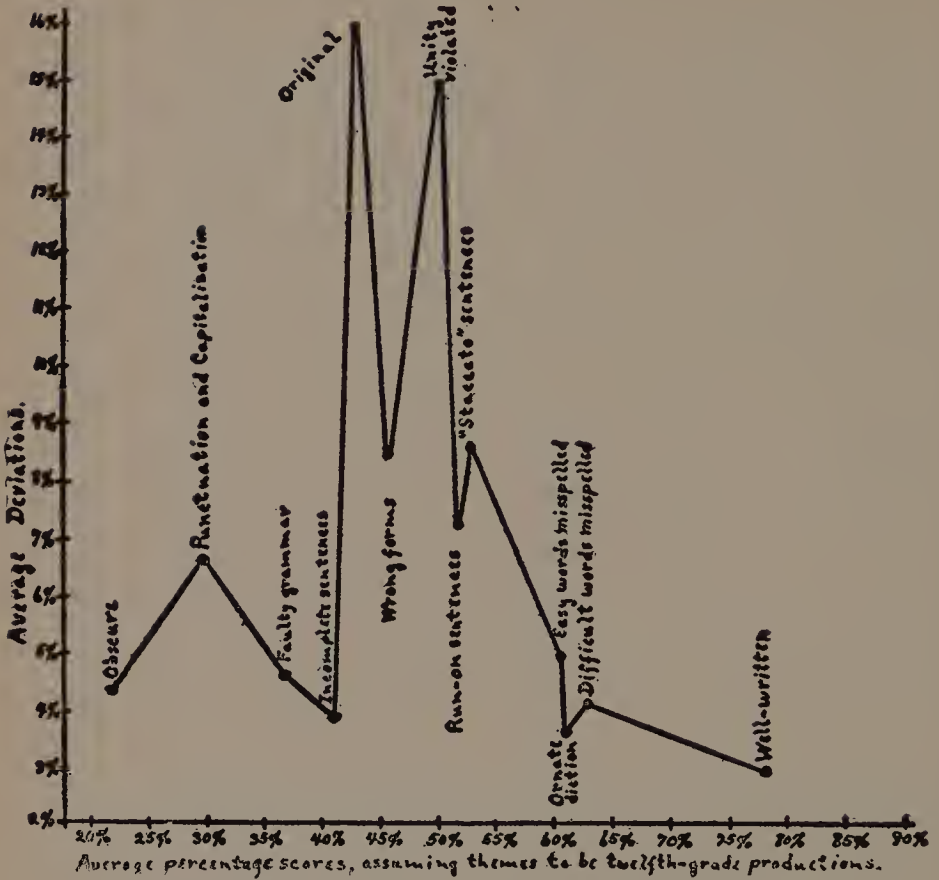


FIG. II.—RELATION BETWEEN AVERAGE AND AVERAGE DEVIATION IN "91" STUDY, TWELFTH-GRADE SCORING

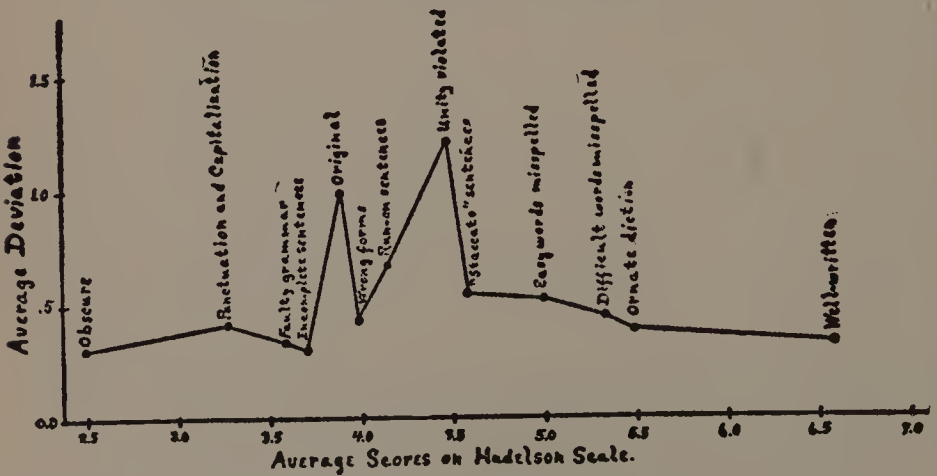


FIG. III.—RELATION BETWEEN AVERAGE SCORE AND AVERAGE DEVIATION IN "91" STUDY, SCORED ON HUELSON SCALE

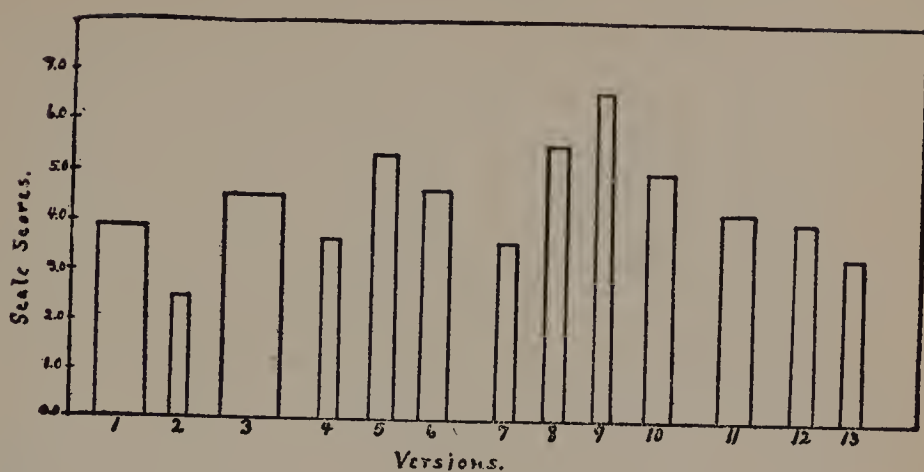


FIG. IV.—COMPARISON OF THE AVERAGE SCALE SCORES AND AVERAGE SCALE DEVIATIONS FOR THE THIRTEEN DIFFERENT VERSIONS OF SEVEN THEMES EACH  
(Height shows average score; width, on same scale, shows average deviation)

### Interpretations

1. As in the "A-B-C" study, the commendable version was appreciated in all three scorings and was ranked first without exception.

2. Teachers so generally yielded to the false allurements of the ornate version as to rank it second with the use of a scale and third without. Evidently the Hudelson Scale, at least, does not aid teachers in discriminating between affectation and sincerity in composition. This evidence is supported by an earlier study. A number of the judges who scored the compositions during the Virginia State Survey so misunderstood one sample<sup>4</sup> of naive sincerity as to write on the margins of the mimeographed themes, "Oh slush!" "The poor, innocent thing!", "Simple, I'd say!", and other such expressions of a lack of appreciation.

3. The high rating given to the themes containing misspelled words is significant. More than half of the judges filed either written or verbal protests to the effect that a number of the ninety-one specimens were exact duplications. Frequently these repetitions were cited, and upon investigation (after the scoring had been completed) it was found that these citations invariably involved the

<sup>4</sup>This theme occurs as No. II J in the Practice Lists included in Hudelson's *English Composition Scale*, published by the World Book Company.

original versions and either those containing difficult words misspelled or those containing easy words misspelled. Apparently even trained, experienced English teachers frequently fail to detect misspelled words. A general composition scale is of little or no benefit in this respect.

4. In all three scorings the judges consistently assigned practically equal merit to the two versions containing misspelled words, regardless of the spelling difficulties. Most teachers obviously recognize no distinction between the misspelling of one word and that of another; all offences are equally negligible or equally serious; a misspelled word is a misspelled word.

5. As between school grades, spelling distinctions may possibly have been drawn; but since the differences between the percentage averages of the ninth and twelfth grades in the misspelled versions are practically equivalent to the differences between the percentage averages of these same two grades in the ornate and in the well-written versions, probably no distinction was consciously made.

6. Punctuation and capitalization are regarded more seriously than the tentative A-B-C study revealed. There mechanics in general were held to be of less consequence than structure; but apparently those judges were considering chiefly other mechanical features, for here a distinction is clearly drawn between the importance of punctuation and capitalization and of the other mechanical devices. While these others are here held to be less significant than structural matters, punctuation and capitalization are given more weight in all three scorings than any other quality save clearness.

7. The use of incomplete sentences is considered a worse offence than is the abrupt, jerky sentence habit or the run-on tendency. This distinction is doubtless due in part to English teachers' obvious demand for clearness, because, of the three kinds of sentences, incomplete ones certainly render meaning most obscure.

8. All other composition qualities are subordinated to clearness. Even unity is relatively unimportant. After all, this is probably a reasonable attitude, for while unity and the other attributes all make for clearness, an evaluation of these other qualities depends upon the author's intentions; so his purpose should first of all be made clear.



9. The use of an objective scale for measuring general merit has practically no effect upon the relative importance attached to the various qualities in composition.

10. It would seem from these results, from minor studies made previously, and from an inspection of several hundred compositions submitted from all parts of the country, that the most obvious qualities in theme-writing are the most influential. It is axiomatic, but none the less significant, that teachers of composition base their scores upon the presence or absence of qualities which they detect.

11. A natural but expressive conclusion to be drawn from Table II is the fact that teachers are less certain about the importance of those qualities which they place in the middle of the average rankings than they are about the importance of those qualities which rank at either extreme. Conversely, there is closest agreement upon those qualities which characterized the themes that were rated poorest or best. Well-written themes, for example, which were scored highest have generally the smallest deviations, while those themes which were rated mediocre because they violated the principle of unity show a wide disagreement. Figs. I, II, and III<sup>5</sup> reveal this condition graphically. The fact that the loci at the extreme left and extreme right are, generally speaking, nearest the base line shows that, in the main, there is closest agreement upon the themes ranked best and poorest. This is even more marked with the use of a scale than by the percentage basis of scoring. Fig. IV expresses the same fact in scaled block form.

12. The most significant conclusion to be drawn from Table II is that an actual, typical pupil theme is the hardest kind of a composition to judge. There was a universal sentiment among the teachers who scored the ninety-one themes that they should not be expected to score reliably such unnatural, unsymmetrical, lop-sided productions as they found the spoiled versions to be; yet they agreed least upon the seven original compositions and most upon artificial samples! The results are virtually the same with or without the use of a scale for measuring general composition merit. This would seem to be an argument in favor of the use of analytical scales.

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<sup>5</sup>These curves are static, in no sense indicating progress. The connecting lines are drawn merely to emphasize the positions of the loci.

## SUMMARY

1. Objective scales for measuring general merit do not help teachers to discriminate between sincere and pretentious composition. Neither do they materially affect a teacher's estimate of the relative importance of the various elements in composition.

2. Teachers frequently fail to detect misspelled words.

3. Most teachers recognize no distinction between spelling difficulties. A misspelled word is a misspelled word.

4. Apparently a detected misspelling is an equally serious offence, whether committed by a freshman or a senior.

5. Lack of clearness is considered the most serious defect in composition. Other structural weaknesses and punctuation and capitalization errors are also considered major offences.

6. An incomplete sentence is considered the worst kind of a sentence.

7. The most obvious qualities in composition are the most influential determiners of theme scores.

8. Teachers agree upon the value of very good or very poor writing more closely than they do upon the value of mediocre composition.

9. Teachers agree more closely upon the general quality of actual, normal pupil compositions than they do upon the merits of writing which stresses a few big aspects, such as thought, structure, and mechanics; but when these aspects are further analyzed into their component elements and one element considered at a time, teachers are more reliable in their judgments than they are in estimating general composition merit.

The complexity of composition aims, the diversity of practices employed in the teaching of composition, and the lack of agreement upon the relative importance of the various elements in composition reveal a need for the use of scientific means of accurately measuring the degree to which the various methods are realizing their aims and of arriving at some conclusion as to the weight to be assigned to each composition element. The remaining chapters of this volume will be devoted, therefore, to a discussion and development of scientific objective instruments for measuring English composition.

## CHAPTER III

### THE NEED FOR SCIENTIFIC METHODS OF MEASURING COMPOSITION

“Ye have read, ye have felt, ye have guessed, good lack!”

—Kipling: *Tomlinson*.

A southerner who was visiting a friend in Boston is said to have remarked to his host, “We guess, whereas you reckon”; to which the Yankee replied, “Yes, but we guess a great deal better than you’d reckon!”

Both of these men were revealing the most natural, most common, most convenient, but most wasteful tendency in the world. Moreover, they may have been school teachers, for they were displaying the most irresponsible, most hazardous, most uneconomical, but most prevalent practice in education.

Only by chance will one realize economically any aim, educational or otherwise, by the Yankee’s guessing or the southerner’s reckoning. In the long run, when one faces single options, he will guess rightly in half the cases; but when he is confronted by several alternatives, his chances of guessing correctly are considerably less than even. It is then that he needs to *know*. Education is one of these complex problems presenting many options; and educational progress is entirely too serious a responsibility to undertake by chance methods. We need to know; and this knowledge should be in such terms and in such form that it may be communicated to and be understood by others. Abilities and achievements should be measured from zero, and expressed in terms of comprehensible units. These things scientific, objective measurements attempt to do.

To the initiated, scientific measurements in education need no defence; their results justify their use. To those who for one reason or another are less fortunate it is the purpose of this chapter to justify the use of objective measurements in one field of education—namely, written composition—by (1) revealing conditions existing under unscientific control; (2) showing the results of the

use of objective composition scales; and (3) explaining the reasonable uses of such devices.

When three teachers of English composition rank ten anonymous themes in order of merit with the result shown in Fig. V, obviously something is wrong. When it is known that these three judges are teachers of long experience and high professional standing, who taught different sections of the same class in the same school, and who knew that all ten themes were written by eighth-grade pupils, it becomes still more apparent that something is the matter. When, thirty-one days later, these same teachers scored with the use of a scale the same ten themes distributed among 190 other anonymous compositions written by seventh-, eighth-, and ninth-grade children, and ranked the ten themes in the order shown in Fig. VI, it looks as if the use of a composition scale might be desirable. These second ratings were made during the first experience the three

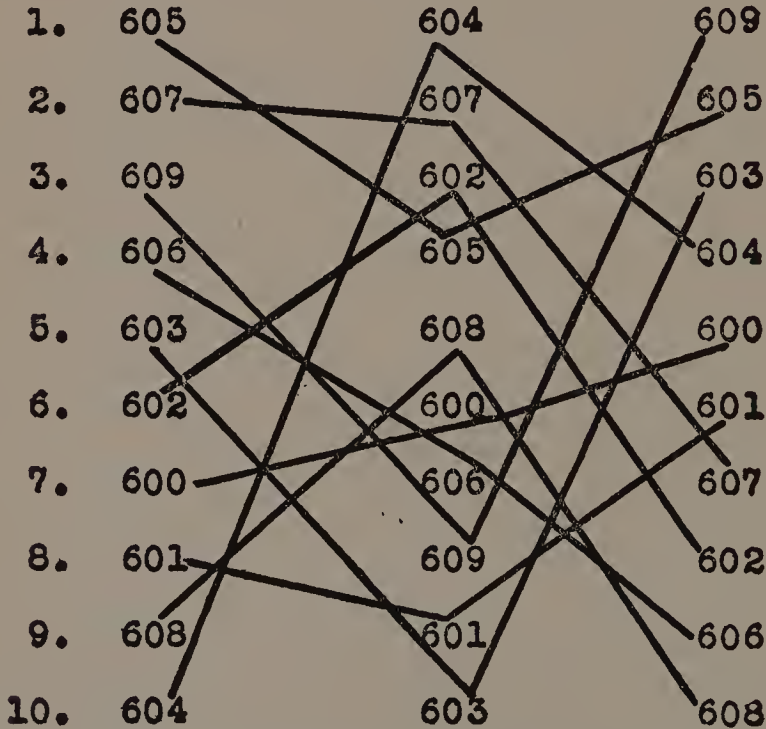


FIG. V.—RANKINGS OF TEN THEMES BY THREE TEACHERS WITHOUT THE USE OF A SCALE

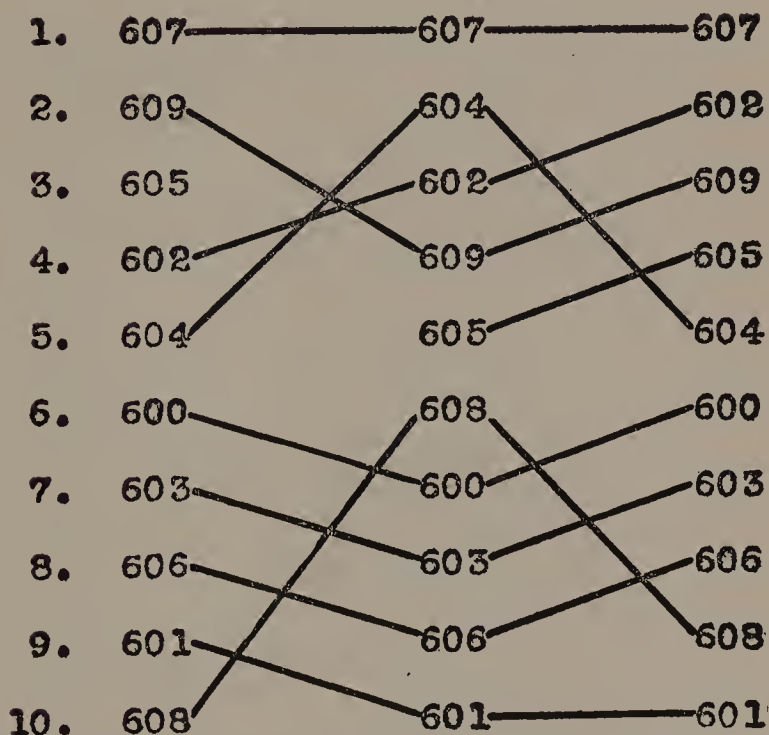


FIG. VI.—RANKINGS OF THE SAME TEN THEMES BY THE SAME THREE TEACHERS ONE MONTH LATER WITH THE USE OF A SCALE



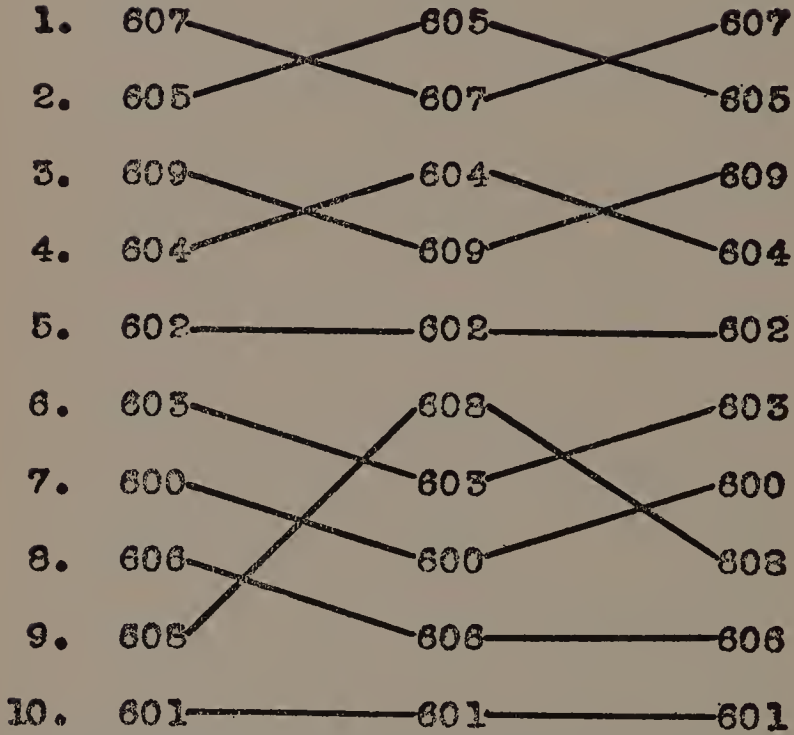


FIG. VII.—RANKINGS OF THE SAME TEN THEMES BY THE SAME THREE TEACHERS FOURTEEN WEEKS LATER WITH THE USE OF THE SAME SCALE

teachers had had with objective scales in composition. After fourteen weeks of practice with the scale and several conferences on their scorings, they again judged the same ten themes, concealed among 108 other anonymous compositions. This time, as Fig. VII shows, the rankings were practically identical except for the incorrigible theme No. 608 which was rated ninth, sixth, and eighth respectively.

In the first ranking (Fig. V) theme No. 600 alone received even approximate agreement. Moreover, the judgments showed no consistency: each reader was higher than the other two about as often as she was lower. Theme No. 604, it will be seen, was rated best by one scorer, poorest by another, and medium by the third. It is apparent in Fig. VI that the use of a scale produced more agreement and decidedly more uniformity. The second reader was low, but she was consistently low. She could correct her error on practically all themes by correcting it on one. That is just what she did during the fourteen weeks of practice and conferences. The disagreements shown in Fig. VII are insignificant, except on theme No. 608, in which the second reader still succumbed to a fanciful, flowery description, full of mechanical errors and blurred by lack of clearness.

To discover how much of this improvement was due to the use of a scale and how much to a better appreciation of the themes because of repeated applications to them, the same ten themes were ranked three times without the use of a scale by fourteen other experienced English teachers in twelve school systems. There were intervals of one and four months between their scorings, and in each case the ten anonymous themes were concealed among others and given new numbers. This study revealed no such improvement in either agreement or consistency. Closer familiarity accruing from repeated readings increases reliability somewhat, but affects consistency practically none. Though more fickle from day to day and more susceptible to varying temperaments, personal standards are less modified by deliberate influences than are objective standards. Facts yield to new facts, but opinions are stubborn.

These results were obtained from conscientious, experienced English instructors. Conditions among inexperienced teachers are

even more chaotic. In one study (Ref. 26)<sup>1</sup> eight compositions were scored on a percentage basis by ten inexperienced teachers with the result that one theme received a grade of 40 percent from one reader and 95 percent from another. One teacher 'passed' all eight of the pupils, while another passed only two of them. The pupil who was scored 40 percent and 95 percent was given, by the four teachers who failed him, an average score of 56 percent, while the other six readers gave him an average grade of 83 percent.

The significant fact about the results of both of these studies is not that those teachers were hopeless judges, for they were not; but that their pupils were not getting justice until a scale was employed, and that it took practice in the use of a scale to reveal the injustices. This is, indeed, one justification for using an objective measuring instrument. If a woman who has a poor conception of linear dimensions were to estimate by mere inspection the amount of wall paper needed for her house, and then just before mailing her order she were to use a yardstick and find that she had considerably underestimated, she would be shocked by this narrowly averted domestic tragedy, the mail-order house would be spared a vituperative letter, and, most important of all, she would have more respect for her yardstick. If, on the other hand, she were to discover that she had considerably overestimated the dimensions of her rooms, the revelation would be more gratifying, but none the less impressive. Yet this incident would be petty compared with the injustices heaped upon thousands of pupils every day and the calumnies they suffer through their teachers' ignorance of educational yardsticks. Under the conditions revealed by Fig. V it would have made a great deal of difference to each pupil under which of the three teachers he happened to be. Six months later it would have been relatively immaterial.

It does not follow that compositions should always be considered anonymously or that a pupil should be expected to do as well under one teacher as under another. The personalities of both pupil and teacher are mutual influences which should be recognized in daily instruction and in the weekly theme. But when

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<sup>1</sup>For numbered references, see the Bibliography at the end of the Appendix.

an unprejudiced estimate of a pupil's proficiency in writing is desired, that estimate can best be had by measuring his achievement upon an objective scale, regardless of his school grade and ignorant of his authorship. Such cold, impersonal tests should be made only after considerable intervals, for Van Wagenen and Haggerty (Ref. 23) have shown that, owing to the complexity of composition ability, progress is slow, and even a slight improvement represents a tremendous gain. Scientific tests should be given far enough apart to reveal progress. Between these tests the teacher should recognize such personal conditions as capacity, interests, and aptitudes.

This opportunity which objective measuring devices afford for tempering injustices within a department applies also to conditions existing between one school and another. To compare the achievement of pupils in one school with that of pupils in even the same grade in another school having different standards is unfair. Seventy, for example, may be the passing grade in one school, and 60 the deadline in the other. Even when the passing mark is the same for both schools the teachers' conceptions of it may differ; so that a 60 in one school may represent better composition work than 70 signifies in the other school. Before drawing conclusions from comparisons a teacher should know just how much merit any given symbol represents. By using an objective scale two teachers can be reasonably sure that when one mentions a score they will both know what he means by it.

This introduces a third justification for the use of scientific, objective scales. Every experienced English teacher has personal standards for the measurement of composition.<sup>2</sup> His very marks, be they A, B, C, D, and E, percentages, or some other scheme, imply a standard. But the trouble with these personal schemes is that they will not 'stay put.' Standards seen only in the mind's eye are subject to change. A belated salary check, a bolted supper last night, a dance to-morrow night, a stormy study-hall period, a tight shoe, a cold letter, or even more unrealized, surreptitious influences tend to upset subjective standards. Just as a wise child learns when to approach its father for money, so an observant

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<sup>2</sup>For a record of one such set of standards, see Pafford, H. E. "Grading composition." *English Journal*, April, 1916. pp. 273-4.



pupil, if he could, would like to dictate when his teacher should mark his composition. Marks based upon a comparison of pupil achievement with printed samples spread out before one are less likely to vary from day to day.

Objective standards do not, however, render judgment infallible. There is still the possibility of evaluating concrete models inconsistently. Owing to some passing mood or other, sample 6.0 on the Nassau County Supplement, for instance, may seem to represent considerably higher composition merit on Tuesday than it did on Monday. But in the long run the use of an objective scale will reduce a teacher's fluctuations in standards, and so reduce the number and severity of the injustices done to his pupils.

Assuming that pupil achievement represents pupil ability, composition scales are valuable agencies in classifying children. If new pupils, or old pupils who seem to be out of their class in writing ability, are assigned even a single theme on the same topic and under conditions similar to those which prevailed when the compositions were written which form the scale and set the standards, and those themes are scored by, say, three trained judges and the median grade adopted, such pupils are more likely to be classified properly than they would be by the result of a theme, or even several themes, scored subjectively.

The value of objective composition scales to teachers themselves is becoming more and more recognized and may profitably become the chief function of such instruments. Without some such concrete, stable device it is difficult for a teacher to know what is being accomplished. Circumstances and personal relations so color the daily recitation that the teacher needs from time to time to employ a test which ignores these concomitant accretions and measures pure progress. The proof of instruction is its actual results. Objective measurements enable a teacher to test, unprejudiced, the efficacy of his various teaching methods.

Scientific instruments designed to test specific functions in composition, such as the Briggs Form Tests, and composition scales which resolve written expression into its several elements have the additional advantage of enabling their users to diagnose their pupils' writing abilities and thus adapt instruction to meet special



needs and to overcome particular weaknesses. Scales for measuring general merit are valuable mainly for classifying pupils and for testing general methods of instruction, while analytical scales are useful in applying proper treatment to specific conditions.

These uses of objective measurements in composition can be employed most effectively if the pupils themselves have access to and are familiar with the scales. A scale mark will mean more to a child if he can see exactly how much merit it represents. A knowledge on the part of the child of how much progress his last theme shows over the one previously scored by the use of the same scale is an incentive to still further improvement. It is advisable, therefore, either to put a copy of the scale into the hands of each pupil or to exhibit it where all may consult it, to study together the scale and the reasons for assigning the various samples their values, and so take the pupils into one's confidence to such a degree that they will not look upon teacher marks as mysterious symbols which they are not supposed to understand and which, if they knew the truth, the teacher herself can neither fully explain nor justify.

This practice has also a distinct social justification. Encouraging a pupil to attain higher and higher steps on the scale substitutes in part for the old and sometimes envious group rivalry a more salutary and progressive competition with himself. The unsocial feeling that one is succeeding at the expense of his fellows gives way more and more to a desire to better one's own record.

Objective devices for measuring composition merit are not, then, in spite of assumptions to the contrary,<sup>3</sup> designed to improve writing directly. But their use is amply justified on other grounds. We do not condemn bookkeeping because it does not in itself add to our bank accounts. An itemized statement of our incomes and expenses enables us to discover our sources of waste and eliminate them. By reckoning our balances in dollars and cents we not only have a practicable conception of our financial status, but other people can also understand just how much we are worth. To employ an earlier (Ref. 4) and happier analogy, "No measuring device in itself does that [improves ability.] Solicitous parents who

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<sup>3</sup>For example, see Ward, C. H. "The Scale Illusion." *English Journal*, April, 1917.

weigh and measure their baby every day do not suppose for a moment that such a practice will of itself add an ounce to the baby's weight or a cubit to his stature. They can, however, measure the baby's growth; and, by measuring before and after various diets, they can tell which kind of food best agrees with him. They can also compare their offspring with the progeny next door or with a baby in Hongkong; and, by consulting tables of weight and height for children of the same age, they can compare their baby's physical condition with the standard of many babies of his age.

"Composition scales are designed for similar uses. By scoring the compositions of a class on a scale, the teacher can learn the actual achievement in writing of that class. By measuring themes written by the same group of pupils at various times, he can discover what improvement the pupils have made in composition. By measuring them before and after they have been subjected to various methods of instruction, he can deduce which method produces best results, and can modify his teaching accordingly. Finally, by comparing the achievement of his pupils with standards based upon a large number of pupils of the same grade, he can tell whether his pupils are writing as well as they should."

## CHAPTER IV

### WHAT HAS BEEN DONE

It at least is within the bounds of conjecture to surmise that when the head of one of our paleolithic homes found that the stone which he had kept for years lying handy upon his cave-mantel because it had been his most successful food-getter and foe-slayer was also useful in helping him to judge the weight of objects of barter, he discovered the art of measurement. His good wife, too, may have one day observed that her lord's war-club was exactly the length required for a new Easter skin. Thus by slowly evolving standards of weight and dimension this observing family may have exercised improved methods of social control and thereby gained a neighborhood prestige and ascendancy.

The notion that these are mere fanciful indulgences may be dispelled by the assertion<sup>1</sup> that there lives to-day in the English Channel a people famous for its skill in cattle-raising whose instruments for measuring and weighing are so variable and individual that they are named for the families who employ them; so that it is important in close bargaining to know by whose crock the milk has been measured and by whose stone the butter has been weighed.

It is a far cry from such crude instruments to the devices which to-day record physical attributes in thousandths of a unit. It is a farther cry to refined means of measuring mental achievement and human capacity. As in every other form of social control, analysis of the higher processes has developed latest; so that it was only yesterday, comparatively, that man began to devise ways of measuring his aptitudes and abilities.

While, theoretically, any difference which can be detected can be measured, nevertheless the more tangible, objective, and constant a quality is, the more discernible and mensurable are its differences. Human expression, being, in some degree at least, an

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<sup>1</sup>Made in an address by Dean James E. Russell.

art, reluctantly adapts itself to concrete standards. Some of the more objective elements of written expression, such as handwriting, vocabulary, spelling, and punctuation, have, to be sure, been successfully scaled; but the more abstract, intangible qualities like clearness, style, personality, and sincerity are more difficult to capture. Yet these very qualities, because they constitute the fundamental elements of expression to which the more tangible attributes are mere incidental means, need most, in spite of their capricious natures, to be made to conform at times to scientific standards.

With three possible exceptions, to be discussed later, all significant attempts at measuring composition have dealt with general quality rather than with specific qualities. Indeed, this is the chief distinction between the two purposes of measuring composition—diagnostic and classificatory. There is need for both kinds of instruments; and the failure of existing devices to perform the diagnostic function does not justify the attitude which at least one recent writer<sup>2</sup> assumes toward scales for measuring general merit. Granting that the most urgent need in composition is for analytical tests and scales, the instruments which have already been devised for measuring general composition merit have nevertheless performed a service that amply justifies their present existence and future refinement.

#### PAST ACCOMPLISHMENTS REVIEWED

1. *Rice's Scale.* As early as 1903 Rice (12) was at work upon means of reducing variability in scoring the mechanical and structural aspects of composition. He had a story read to more than 8,300 pupils, in various schools, and they were asked to reproduce it in writing. They had had no intimation of the assignment, and only first drafts of their reproductions were considered. The themes were graded by placing them in five piles, known as Excellent, Good, Fair, Poor, and Failure. From this distribution class averages were computed and samples of the reproduced story selected as guides to further scoring.

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<sup>2</sup>Ashbaugh, E. J. "The measurement of language: what is measured and its significance." *Jour. of Educ. Research.* June, 1921.

In two respects Rice's crude scale was diagnostic. Rice focused attention upon structure and mechanics, ignoring thought as far as possible, and he analyzed what he meant by Excellent, Good, Fair, Poor, and Failure. In doing the latter he defeated in some degree his original purpose, by interpreting his key words in terms of percentages. In what might be called a social sense he also attempted to diagnose the variations in scores within the same grade by allocating to them such influences as amount of time devoted to language study, and age, nationality, and environment of pupils. He went so far as to recommend a uniform allowance on the scores for children of foreign parentage.

While subsequent studies have thrown some light on the question, the soundness or unsoundness of Rice's procedure of putting equal emphasis upon the various mechanical elements of composition in all school grades has yet to be determined. Though a crude beginning, Rice's scale was a long step in the direction which scientific measurement of composition has since taken. Rice, himself, claimed that the personal equation influenced his scorers' judgments no more than it would have done in arithmetic. There is some support for his claim in the fact that he discovered the same decided overlapping between grades that has been found by the use of more precise instruments of measurement. In the light of later developments there is no doubt but that Rice's scheme provided a more reliable means of estimating the achievement of pupils than is possible without objective standards.

2. *The Hillegas Scale.* Hillegas (3) devised in 1912 the first really scientific instrument for measuring quality in English composition. He proceeded upon the assumption that differences equally often noticeable are equal, and adopted as a unit that difference which was detected by exactly seventy-five percent of the judges. The median deviation, in other words, was his unit of difference in quality. The composite judgment of the most competent scorers who could be secured was used in locating the zero point of merit; and two hundred two experienced judges rated the samples which form the scale. Extreme care was exercised at all times to secure only reliable results.



The Hillegas Scale consists of ten compositions arranged in ascending order of merit from an artificial sample representing zero quality to specimen No. 177 with the scale value 937 (or 93.7, or 9.37, according to the multiple of the original unit desired.) The scale specimens vary greatly in length and nature. No two deal with the same theme; the scale includes samples of all the discourses and of letter-writing; and the intervals are irregular. This unevenness of steps and the diversity of topics tend to make the use of the Hillegas Scale complicated. It has been contended<sup>3</sup> upon questionable evidence that the variability in scoring is slightly greater with the use of this scale than without it. Thorndike, who later extended it, contends that with sufficient practice teachers will by it be able to increase their reliabilities. Trabue, who also improved upon the Hillegas Scale, declares that in spite of all objections to it, it remains one of the most useful instruments for measuring educational achievement. The results of experiments by Theisen (39) and Van Wagenen (45) make it doubtful whether the use of the Hillegas or any other scientific, objective composition scale will reduce reliability. The consensus of opinion among one hundred two judges trained in the use of five composition scales was that the Hillegas Scale is difficult to use because of its length and complexity, and so is of maximal value only to teachers long versed in its use. Certainly, familiarity and practice are prerequisites in passing judgment upon the value of any scale, and the Hillegas Scale is undoubtedly hard to get acquainted with. Hillegas, himself, meets the objection to his diversity of discourses by saying that only three of the four hundred and fifty judges who at one time or another scored the samples objected to this feature.

That the Hillegas Scale has not been as widely used as have its derivatives is doubtless due in part to its early appearance before an unscientific and skeptical educational world. This pioneer, missionary function, together with its example of scientific accuracy and its incentive to further efforts along the same line, constitute its chief contribution to education. That it was

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<sup>3</sup>Kelly, F. J. *Teachers' Marks*. p. 134.

deemed worthy of refinement is a testimony to the value of the original scale.

3. *Ballou's Harvard-Newton Scales.* In 1914 Ballou (1) devised a set of instruments, one for each of the four discourses, known as the Harvard-Newton Scales. Each scale consists of six compositions written by eighth-grade children and ranked according to the average judgment of twenty-five teachers who considered them as eighth-grade productions. Each specimen in each scale is followed by a brief exposition of its significant merits and defects and a justification of the position in the scale to which it has been assigned. The steps are irregular in each scale, and a value on one scale does not represent the same degree of merit on any other of the four scales. For this reason it is important when quoting Harvard-Newton results to designate the scale employed.

Though not strictly scientific, the Harvard-Newton Scales represent the second attempt at diagnostic measuring devices in composition. Because of their analyses and because of the fact that there is a scale for each discourse, these are probably the most useful instruments yet devised for teachers just beginning to consider theme qualities objectively. When, however, these scales have served their apprentice purposes, they may profitably be displaced by devices which better meet the world's standards by disregarding discourse distinctions. For measuring general merit there are more reliable instruments; but for diagnostic purposes the Harvard-Newton will still serve as well as any strictly composition scales we have.

Their discourse distinctions are the source of one objection to the Ballou Scales. Society, it is contended, does not impose such restrictions upon its members; consequently neither child nor adult deliberately observes these arbitrary divisions. We all write in whatever discourse and in however many discourses will serve our purposes. A second limitation of the Harvard-Newton Scales is their restricted scope. Because they are incomplete at the lower end, elementary teachers find themselves left without standards for their inferior themes. On the other hand, the best

sample in each scale is so far above theme qualities actually encountered in the high school as to be practically useless.

It is significant that in spite of their age and publicity the Harvard-Newton Scales have provided meager data. Undoubtedly they have been tried fairly extensively, but for some reason results have not been widely circulated. In view of this meagerness of extant data and in the belief that teachers will frequently wish to test their pupils on one discourse at a time and compare their results with those of a number of other schools of similar size and constituency, it has been thought advisable to convert Harvard-Newton values into Hillegas terms. Accordingly four hundred twelve trained judges scored the samples in the four Harvard-Newton Scales by means of the Nassau County Supplement to the Hillegas Scale. The median judgments of these four hundred twelve scorers comprise the Nassau equivalents to the Harvard-Newton sample scores; then the intermediate unit steps were interpolated. The transmutations in Table VII are equally applicable to the Hillegas Scale, the Thorndike Extension of the Hillegas Scale, the Nassau County Supplement to the Hillegas Scale, the Hudelson Scale, and the Lewis Scales. By scoring his pupils' themes with the use of the appropriate Harvard-Newton scale and then consulting Table VII for Hillegas equivalents, a teacher will have fairly ample standards with which to compare his pupils' achievements.

The study discussed at length in Chapter V and the results expressed in Table IX reveal the fact that judges equally trained in the use of the Harvard-Newton and Nassau Scales had uniformly higher correlations with the latter. Four hundred fifty-nine pairs of narrative themes were scored on each scale and the results correlated. By the Harvard-Newton Scale the two series of narrative scores yield a coefficient of .61 ( $\pm .06$ ), and by the Nassau Scale .80 ( $\pm .03$ ). A correlation of one scale with the other on the two sets of narration scores results in coefficients of .67 ( $\pm .045$ ) and .69 ( $\pm .04$ ). A correlation of the Harvard-Newton scores on four hundred fifty-nine descriptive themes with the Harvard-Newton scores on an equal number of other descriptive themes yields .59 ( $\pm .03$ ). A comparable correlation be-

tween Nassau scores on the same descriptions gives .77 ( $\pm .03$ ). The correlations between the two scales are .80 ( $\pm .03$ ) and .55 ( $\pm .06$ ). Between four hundred seventy pairs of expository themes the Harvard-Newton correlation is .68 ( $\pm .02$ ), the Nassau .75 ( $\pm .03$ ), with interscale correlations of .53 ( $\pm .06$ ) and .75 ( $\pm .03$ ). With four hundred twenty-two pairs of argumentative compositions the correlations are as follows: Harvard-Newton, .67 ( $\pm .03$ ); Nassau, .70 ( $\pm .04$ ); Harvard-Newton with Nassau, .70 ( $\pm .04$ ) and .41 ( $\pm .09$ ).

Because of the use that was to be made of the scores later, a series of tests, covering four months, was given to determine the comparative reliabilities of the Harvard-Newton and Nassau Scales. The eight judges who later scored the themes written on Assignments 13A and 13B (see Appendix, Section V) scored 108 other narrative compositions with the use of the Nassau Scale. Thirty-seven days later the same eight judges again scored the same 108 themes by the same scale. The coefficient of correlation between the two sets of scores was .825 ( $\pm .02$ ). Correlations between the scores of four of these judges and the scores of the other four on the first and second readings were respectively .82 ( $\pm .02$ ) and .88 ( $\pm .02$ ). Forty-two days later the same eight teachers scored the same 108 themes with the use of the Harvard-Newton Narration Scale. Then, five weeks later, the same 108 compositions were scored again by the same teachers on the same scale. This time the inter-correlation was .69 ( $\pm .02$ ), while the intra-correlations were .69 ( $\pm .04$ ) and .71 ( $\pm .02$ ). Between each two scorings the themes, all of them anonymous, were shuffled and renumbered. The results, shown in Table VI, indicate (1) that for reliability the advantage is all with the Nassau Scale; (2) that the Nassau scores and correlations in Table IX are more valid than are those in Harvard-Newton terms; but (3) that added familiarity with either scale and with the themes being scored upon it increases its reliability. Whatever advantage resulted from this increased familiarity, however, accrued to the reliability of the Nassau Scale.

4. *Thorndike's Extension of the Hillegas Scale.* In 1915 Thorndike (6) devised an extension of the Hillegas Scale by sub-



TABLE VI.—CORRELATIONS TO DETERMINE THE COMPARATIVE RELIABILITIES OF THE HARVARD-NEWTON AND NASSAU SCALES

Correlation between median judgments of eight teachers on first and second scorings of 108 narrative themes by Harvard-Newton Scale.	Correlation between median judgments of same eight teachers on first and second scorings of same 108 themes by Nassau Scale.	Correlations between median judgments of four teachers on the 108 themes and the median judgments of the other four teachers on the same themes, for both scorings by the H-N Scale 1st trial 2nd trial	Correlations between median judgments of four teachers on the 108 themes and the median judgments of the other four teachers on the same themes, for both scorings by the Nassau Scale. 1st trial 2nd trial
.69 ( $\pm .02$ )	.825 ( $\pm .02$ )	.69 ( $\pm .04$ ) .71 ( $\pm .02$ )	.82 ( $\pm .02$ ) .88 ( $\pm .02$ )

TABLE VII.—HARVARD-NEWTON SCALE VALUES TRANSMUTED INTO THEIR HILLEGAS EQUIVALENTS

Narration		Description		Exposition		Argumentation	
H-N Values	Hillegas Equivalents	H-N	Hil.	H-N	Hil.	H-N	Hil.
47	3.8	45	3.6	39	3.1	47	3.5
48	4.0	46	3.7	40	3.2	48	3.7
49	4.1	47	3.9	41	3.4	49	3.9
50	4.3	48	4.0	42	3.5	50	4.1
51	4.4	49	4.2	43	3.6	51	4.3
52	4.6	50	4.3	44	3.8	52	4.5
53	4.7	51	4.4	45	3.9	53	4.6
54	4.9	52	4.6	46	4.0	54	4.7
55	5.0	53	4.7	47	4.2	55	4.8
56	5.2	54	4.9	48	4.3	56	4.9
57	5.2	55	5.0	49	4.5	57	5.0
58	5.3	56	5.0	50	4.6	58	5.0
59	5.3	57	5.2	51	4.7	59	5.1
60	5.4	58	5.2	52	4.9	60	5.2
61	5.4	59	5.3	53	5.0	61	5.3
62	5.4	60	5.4	54	5.1	62	5.4
63	5.5	61	5.5	55	5.2	63	5.5
64	5.6	62	5.6	56	5.3	64	5.6
65	5.6	63	5.7	57	5.4	65	5.7
66	5.7	64	5.7	58	5.5	66	5.8
67	5.8	65	5.8	59	5.6	67	5.9
68	6.0	66	5.9	60	5.7	68	6.0
69	6.1	67	6.0	61	5.8	69	6.1
70	6.2	68	6.1	62	5.9	70	6.2
71	6.4	69	6.2	63	5.9	71	6.3



TABLE VII—Continued

Narration		Description		Exposition		Argumentation	
H-N	Hillegas						
Values	Equivalents	H-N	Hil.	H-N	Hil.	H.N	Hil.
72	6.5	70	6.3	64	6.0	72	6.4
73	6.6	71	6.4	65	6.0	73	6.5
74	6.8	72	6.6	66	6.1	74	6.6
75	6.9	73	6.7	67	6.2	75	6.7
76	7.0	74	6.8	68	6.2	76	6.9
77	7.1	75	6.9	69	6.3	77	7.0
78	7.3	76	7.0	70	6.3	78	7.1
79	7.4	77	7.1	71	6.4	79	7.2
80	7.6	78	7.3	72	6.5	80	7.3
81	7.7	79	7.4	73	6.6	81	7.4
82	7.8	80	7.5	74	6.7	82	7.6
83	8.0	81	7.6	75	6.8	83	7.7
84	8.0	82	7.8	76	6.9	84	7.8
85	8.0	83	7.9	77	7.0	85	7.9
86	8.1	84	8.1	78	7.1	86	8.0
87	8.1	85	8.2	79	7.2	87	8.1
88	8.2	86	8.3	80	7.3	88	8.2
89	8.2	87	8.3	81	7.4	89	8.3
90	8.2	88	8.4	82	7.5	90	8.4
91	8.3	89	8.5	83	7.6	91	8.5
92	8.3	90	8.6	84	7.7	92	8.6
93	8.4	91	8.7	85	7.8	93	8.6
94	8.4	92	8.8	86	7.9		
		93	8.9	87	8.0		
		94	9.0	88	8.0		
		95	9.0	89	8.1		
				90	8.2		
				91	8.3		
				92	8.4		

stituting new specimens for certain of the original samples and by including several examples in the steps at or near the middle of his scale. The latter modification offers the scorer more scale comparisons on the compositions of those qualities which the majority of pupils will exhibit. This is clearly an advantage when once the scale is thoroughly mastered; but the increased number and length of Thorndike's samples and their variety of topics render familiarization with it an arduous task. Teachers trained in the use of several scales report that after patient practice they find the Thorndike Extension an excellent measuring device.

5. *Trabue's Nassau County Supplement to the Hillegas Scale.* Another modification of the Hillegas Scale was devised by Trabue

(7) in 1917. Seven of his samples, values 0.0 to 7.2, are compositions on the subject "What I Should Like to Do Next Saturday" obtained during a survey of the elementary schools of Nassau County, New York. Specimen 9.0 is taken from literature. This scale is unique in that it contains a bona-fide pupil theme of approximately zero merit.

Trabue's avowed purposes were (1) to correct the defects of the Hillegas Scale; (2) to devise a scale on the same topic treated by the Nassau County pupils; and (3) to set up tentative standards indicating the quality of English composition to be expected from pupils of any given school grade. He succeeded so well in realizing his aims that for purposes of classification his scale is the most influential, if not the best, instrument extant for measuring the general merit of junior-high-school English composition. Objections to it are made on the grounds that its intervals are irregular, its samples too short, and its upper specimen not a pupil composition. For the most part the second of these criticisms is valid; but the steps are more nearly uniform than those in any preceding scale, and the third condition is due to the difficulty inevitably experienced in seeking pupil compositions of unusually high quality. Certainly a more significant criticism would be to point out the distinct gap that divides samples 6.0 and 7.2. The specimens up to and including 6.0 consist of mere writing; but beginning with sample 7.2 there is distinct and increasing literary merit. Enough trained judges have concurred in this observation to give it considerable validity. But, all in all, no better objective scale has been devised for measuring composition achievement in the junior high school.

6. *The Breed and Frostic Scale.* In the same year that Trabue's scale appeared Breed and Frostic (2) developed another instrument for measuring general merit in composition. It consists of completed stories written by sixth-grade pupils who had had read to them an unfinished narrative and who were then given twenty minutes in which to complete the story. In selecting and evaluating their scale samples these authors followed the methods devised by Hillegas.

This is the only composition scale which attempts to reproduce in type the physical characteristics of the written compositions which compose it. Its chief distinction, however, is the homogeneity resulting from its narrow range of merit. Yet in spite of its intensive adaptability to the upper elementary grades, it has the advantage of being a reliable instrument for senior-high-school use. Its concentration upon the adolescent period, its indicative topic, and its having been devised throughout under controlled conditions and by sound methods make the Breed and Frostic Scale deserving of more attention than it has received.

7. *The Willing Scale.* The Willing Scale (9) has been characterized as at once the most promising and most disappointing attempt to devise a diagnostic composition scale. This verdict is based upon the claim that Willing analyzed composition while designing his scale, and then undid what he had accomplished by recombining the scores on the various qualities into one composite grade. While it is true that Willing derives the ultimate score in just this manner, the criticism is not altogether fair; for the very fact that that ultimate score is a synthetic one, composed of the estimates of the merits of the several component elements, probably gives it an accuracy which a lumped estimate will seldom attain. A firmer ground for criticism would be the unscientific statistical method employed in deriving the scale. The values given to the various samples are altogether arbitrarily assigned; hence the scale is valuable only as a means for measuring progress. It neither furnishes standards nor measures absolute merit.

8. *Van Wageningen's Minnesota English Composition Scales.* Van Wageningen (8) employed the desirable features of coarsely diagnostic scales without including their inherent disadvantages. He has devised separate scales for narration, description, and exposition, and has furnished careful instructions for estimating composition merit analytically. Separate values have been assigned to each specimen in each scale for Thought Content, Structure, and Mechanics. The three qualities are not evaluated in equivalent terms in the same scale, but each quality in each scale furnishes practically an equivalent scale for the same quality in either of the other two discourses. That is, a 72 in Thought Con-

tent is not equivalent to a 72 in either Structure or Mechanics within the same scale or in either of the other two scales; but a 72 in Thought Content on any one of the scales is practically equivalent to a 72 in Thought Content on either of the other two scales.

While these scales represent a worthy attempt to analyze composition writing for diagnostic purposes, they render judgments confusing and difficult if, as is customary with teachers, the separate evaluations are combined into one general score. It was shown in Chapter II that compositions are less reliably judged when analyzed into merely their thought, structural, and mechanical aspects than they are when considered from the standpoint of general merit. Van Wagenen, himself, claims a reliability for his scales only equal to that for general merit scales.

The conclusions reached in Chapter II make it doubtful whether we shall get much further either by Van Wagenen's scheme or with general merit scales. It is likely that most progress will be made in the future with scales designed to measure *and score* only one composition element at a time, such as clearness or capitalization. It is possible, of course—and it was certainly the designer's intention—to use each of the three series of scores in Van Wagenen's Scales as separate measuring devices, ignoring the other ratings and grading upon that one quality alone. But the common feeling among teachers is that they need one general score for grading purposes; and they find doubly confusing the process of analyzing composition, rating each element separately, and then combining the several scores. One hundred judges equally trained in the use of the Hillegas, the Thorndike, the Nassau, the Hudelson, and the Van Wagenen scales pronounced the last one to be comparatively bewildering. After months of faithful, but apparently futile practice in trying to reduce his variability by the use of the Van Wagenen Scales, one tends to resort for consolation to the words of Willing, who says: "It may well be, indeed, even after the measurement of English composition shall have been placed on a thoroughly objective and analytical basis, that the scale for general merit will



persist for the training of individual judgment and for ascertaining compositional situations in the gross'' (47).

9. *The Hudelson Scale*.—The most obvious distinction of the Hudelson Scale (4) is its use of uniform intervals throughout. Like the Thorndike Extension and the Nassau County Supplement, it is a refinement of the Hillegas Scale; its values are equivalent to the same degrees of merit in those instruments, and its steps represent .5 of a unit on the original Hillegas Scale.

The Hudelson Scale is published only in monograph form. The booklet contains, besides the scale itself, a discussion of the reasonable uses of a composition scale, instructions for administering and scoring by this scale and for interpreting the results, several practice sets of compositions for use in training teachers to score reliably, and composite national standards for the various elementary, intermediate, and high-school grades. These features constitute its other chief contributions and render the scale itself more useful, especially for beginners. While the steps are too finely divided for all save very highly trained judges dealing with small groups or individual themes, the fact that the intervals are uniform enables a scorer to omit certain specimens and to make the steps any length desired. Without being burdensome the samples are long enough to furnish evidence of merit. The scale could be improved by extending it down to zero, by substituting pupil productions at the upper extreme, and by including, as Thorndike did, several specimens of each step in the middle of the scale. It is felt that the absolute uniformity of steps and the fact that the samples are narrative should make this the best instrument for measuring general merit in English composition. For junior high school use it may claim to share with the Nassau Scale that distinction.

10. *The Lewis Scales*. Thus far objective instruments for measuring English composition have consisted of (1) scales for estimating general merit (Hillegas, Thorndike, Trabue, Breed and Frostic, and Hudelson); (2) semi-analytical scales (Willing and Van Wagenen); (3) scales observing discourse distinctions (Harvard-Newton and Van Wagenen); and (4) scales devised from, and designed for, particular school grades (Harvard-Newton and Breed and Frostic.) Lewis (5) has recently made the only significant



scientific contribution to the measurement of special kinds of writing. He has devised separate scales for measuring quality in (1) simple order letters, (2) letters of application, (3) simple narrative social letters, (4) expository social letters, and (5) narratives on the topic "One of My Most Interesting Experiences." These five scales consist respectively of 33, 27, 30, 31, and 40 samples, which are evaluated in Hillegas terms. The steps within each scale are irregular, but easy instructions are furnished for converting each instrument into a scale of fewer and approximately uniform steps. The Lewis Scales are scientifically derived, and those based upon letter-writing are unique in the composition field; but they are too recent to pass judgment upon yet. Undoubtedly, the letter scales apply to an important kind of writing. The narration scale does not fall in the same category, and, apart from its wide geographical representation, has no apparent advantages over its prototypes.

Such, then, is the story, in chronological order, of the development of scientific instruments for measuring objectively general or specific merit in English composition. Two new scales appear in Chapter VI, and Franzen promises one from Des Moines.<sup>4</sup> There may be others, either made or in the making, which have not been given publicity. Numerous unscientific or semi-scientific devices exist and are being used or have been used, such as the Topeka Scale (14) and those employed at Hackensack (13) and Indianapolis (10). Most of these were devised for the added value which local productions afford, and have been used only in those school systems in which the samples were written. They are not standardized and do not measure absolute merit; but as mere objective guides they are distinct improvements over personal standards.

Then there is a formidable list of instruments designed to test or measure proficiency in isolated elements of expression. Among these are the Boston Copying Test, Starch's Grammatical Scales, Charters' Language and Grammar Tests, Noyes' Language Test, Trabue's Completion Test Language Scales, Briggs' Forms Tests Alpha and Beta, Starch's Punctuation Scale, Thorndike's Vocab-

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<sup>4</sup>See *Jour. of Educ. Research*. Vol. IV, No. 1. June, 1921. p. 76.

ulary Tests, and numerous spelling and handwriting scales.<sup>5</sup> Some of these are highly reliable and all are commendable efforts to separate written expression into its elements and to measure one aspect at a time *for that aspect*. Some of them are deliberately diagnostic and all of them are analytical. They are not, however, either condemnations of, or substitutes for, means of measuring general composition merit. Specific qualities can and often should be measured separately; but when the general effect of written expression, such as society is usually concerned with, is to be judged, it must be considered in its entirety. In matters of appreciation the sum of all the parts does not necessarily equal the whole. One may stand before a painting and scrutinize one by one the quality or composition of the pigments, the dimensions, design, color, or workmanship of the frame, the quality of the canvas, the artist's name, his technique, or his mastery of proportion or perspective; but if one would judge the picture as a work of art he must either combine his separate judgments of these various aspects or, what is more probable, consider all elements simultaneously. He must see it singly *and* see it whole. So with sculpture and architecture and music. Imagination, which, after all, renders the final verdict upon art, defies *mere* analysis; and composition is an art.

#### SUMMARY

Objective measurements have slowly evolved from the hefting age through the period of crudely scaled weights and measures up to the scientific development of instruments for measuring concretely and accurately even the abstract human qualities. Ignoring for ages such familiar examples as the objective measurement of Abraham's faith and the concrete demonstration of Jonathan's affection, Ruth's love, and Peter's fidelity, we have contended until recently that subjective qualities will not lend themselves to scientific treatment. Though concrete attributes are still most easily measured, many abstract qualities are already being made to con-

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<sup>5</sup> For a discussion of these and other instruments, consult "Bibliography of tests for use in high schools," *Teachers College Record*, Sept., 1922. See also the *Seventeenth Yearbook, Part II*, of this Society for descriptive summaries up to 1918.

form to objective standards, and the rest are known to be measurable. The values of the various mechanical aspects of written expression have, for example, been reduced to concrete terms, and the subjective qualities are slowly yielding to the same treatment.

Existing instruments for measuring the quality of composition objectively are of four types: (1) scales for measuring composition merit regardless of discourse or form distinctions, such as the Hillegas and Thorndike Scales; (2) separate devices for measuring merit in each discourse, such as the Harvard-Newton and Van Wagenen Scales; (3) scales designed to measure composition quality in a particular discourse, such as the Trabue, Breed and Frostic, Willing, and Hudelson Scales and the Lewis Narration Scale; and (4) instruments for judging the composition merit of particular forms of writing, such as Lewis' Letter-Writing Scales.

All existing devices may also be classified into (1) instruments for measuring general composition merit, such as the Hillegas, Thorndike, Trabue, Breed and Frostic, and Hudelson Scales and the Lewis Narration Scale, and (2) devices such as the Rice, Harvard-Newton, Willing, and Van Wagenen Scales for measuring more or less analytically specific composition qualities. One aim of these latter instruments is to diagnose writing ability for instructional purposes; but after analyzing composition into its elements and judging the merit of each element separately, they, all but Van Wagenen, defeat in part their aim by recombining the separate estimates into one general score without either prescribing or suggesting a uniform scheme for weighting the various qualities. Van Wagenen, himself, has left his three qualities isolated, but some teachers either combine their separate estimates or complain because they cannot.

A third distinction of existing composition scales is their classification into (1) instruments designed to measure the writing of pupils in a particular grade, and (2) devices for measuring the quality of the writing of pupils, regardless of school grade. The Harvard-Newton and the Breed and Frostic Scales were designed for use in the eighth and sixth years, respectively, though the latter proves to be about equally suitable to all junior and senior-high-school grades.

Rice, the pioneer, fortunately used an assignment which made his scale, crude though it was, decidedly more reliable than the personal, subjective standards which had theretofore been used altogether and which have yet by no means been discarded in our schools even for 'scientific' testing. In that it also employed the story-completion assignment, the Breed and Frostic Scale is likewise based upon a reliable topic. The Hillegas and Thorndike Scales, though difficult to master because of their varied topics and discourses, are typical of unrestrained pupil composition, and prove after considerable practice to be reliable instruments. The Trabue, the Breed and Frostic, the Willing, the Van Wagenen, and the Hudelson Scales and the Lewis Narration Scale are all better adapted to measuring junior-high-school composition than they are to judging the writing of older pupils. Of these six, the Breed and Frostic and the Lewis are, as far as their topics are concerned, most suitable for senior-high-school testing. The Harvard-Newton Scales represent thoughtful attempts to observe discourse distinctions; and Van Wagenen has succeeded best in analyzing composition into both its discourse and elemental aspects. The significant progress of the future will, however, hardly be made in either these directions or in the way of general merit scales. Devices for judging general merit objectively will always be needed for measuring written expression on the basis that the world measures it; but the teaching profession demands, or should demand, more and better devices for analyzing composition and for diagnosing merits and defects for the purpose of improving instruction.



## CHAPTER V

### THE MEASUREMENT OF COMPOSITION ABILITY

The only scientific, objective composition scales so far devised have been designed to measure composition achievement. They consist either of instruments for measuring general merit, devices for measuring written expression analytically, or tests and scales for estimating familiarity with and proficiency in isolated elements of written language. The topics upon which the sample themes in all existing composition scales are based were chosen arbitrarily. All that was known about either the themes which were written upon those assignments or about the standards derived from those themes was that on such-and-such topics certain children did so-and-so. No one knew whether or not the reactions inspired by those assignments represented those children's real writing ability, or whether, if they did, the same topics would test the maximal writing capacities of all pupils in all grades.

It is important for teachers to know these facts. Gross injustices may be done pupils by either classifying or grading them upon the basis of their written responses to unsuitable theme assignments. It is unfair to a child to classify him according to his reaction to a fruitful theme topic, and then grade him by that standard on the quality of writing he does in response to barren assignments. It is equally unjust to classify a child upon the basis of his reaction to an arid theme topic. If it is desirable to know a child's maximal mental capacity, then it is reasonable to want to know his maximal writing capacity. The just, democratic way to treat a pupil is to group him with others whose maximal abilities *along that line* approximate his, and then to grade him within his group according to the degree to which he exerts that maximal ability—that is, according to his effort. For classificatory purposes, then, an English teacher needs to know a pupil's or class's maximal capacity for writing, while for grading purposes he needs to know to what degree that pupil or that class utilizes its full capacity.



The purpose of this study is to ascertain those two facts and to devise scales which recognize them.

Thirty-two composition assignments on a wide variety of topics were given to 770 pupils in grades seven to twelve. Each of the 13,276 resulting themes was scored on the Nassau County Supplement by an average of eight judges, making a total of 106,208 judgments. Eight of the same judges also scored 3,575 of the same themes with the use of the Harvard-Newton Scales. The judges of each theme consisted of the teacher of the pupil who wrote it and seven other teachers of composition. About half of the scorers were experienced in using objective composition scales. The themes were written in February, 1921, by West Virginia and Indiana seventh-grade, eighth-grade, ninth-grade, junior-high-school, and senior-high-school pupils. Four hundred and eighty-one children wrote upon all thirty-two assignments.

In selecting the theme topics an effort was made (1) to appeal to various interests, emotions, and experiences of adolescents, (2) to make the subjects characteristic of actual, widely-used, and recommended assignments,<sup>1</sup> and (3) to include as many topics as possible that had been employed in other scales. The assignments used by Rice, Trabue, Breed and Frostic, Hudelson, Lewis (Narration), and Willing were included in this series, while from the standpoint of discourse the Hillegas, the Thorndike, the Van Wageningen, and the Harvard-Newton Scales were recognized.

The thirty-two assignments were arranged in pairs; the two members of each pair are intended to be comparable in at least one significant respect. "The Funniest Thing I Ever Saw," for example, was mated with its emotional antithesis, "The Saddest Event of My Life," while Assignments 7A and 7B both call for story completions. This arrangement was made for the purpose of discovering by means of correlations the consistency of pupil reactions to the various kinds of assignments. It is desirable to know, for instance, whether the quality of children's themes on one topic is indicative of the quality of compositions they would write on other assignments of a comparable nature.

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<sup>1</sup>The assignments used in this study are representative of those recommended in the *Bulletin of the Illinois Association of Teachers of English* (1916) and in the *New England Leaflet* (March, 1916.)

To neutralize any effect which might result from relative position, approximately half of the pupils were assigned the topics in one order, while the other half wrote upon them in reverse order. All tests were administered by the pupils' regular English teachers during their customary recitation periods. While care was exercised to prevent any feeling of uneasiness or fear on the part of the pupils, they were given no warning and were allowed only fifteen minutes in which to write and correct their compositions. This may seem an unreasonably limited allowance of time; but only rarely were pupils unable to complete their themes. The fifteen-minute allotment enabled a teacher to administer a pair of assignments during each regular forty-five minute period without disconcerting his pupils by rushing through the assignments.

The investigation was preceded by a letter to teachers in which the purpose and nature of the study were carefully explained, assurance given that all teachers would be sent full and interpreted results of their pupils' records, and an invitation to cooperate extended. Those teachers who wished to participate were then mailed a copy of the assignments, a copy of the Nassau County Supple-

TABLE VIII.—COMPARISON OF THE PROGRESS IN COMPOSITION OF ELEMENTARY-SCHOOL, JUNIOR-HIGH-SCHOOL, AND SENIOR-HIGH-SCHOOL PUPILS

Grade	School	No. of Pupils Tested	Median Score on all Assignments for Each School Separately	Median Score on all Assignments for Both Schools Combined
7	Elementary School. . . .	46	4.8	4.7
	Junior High School. . . .	56	4.6	
8	Elementary School. . . .	58	5.3	5.5
	Junior High School. . . .	76	5.6	
9	Junior High School. . . .	88	5.9	5.6
	Senior High School. . . .	81	5.2	
10	Senior High School. . . .	152	6.2	6.2
11	Senior High School. . . .	112	6.5	6.5
12	Senior High School. . . .	101	6.7	6.7

ment to the Hillegas Scale, a set of score sheets, and a copy of detailed instructions for administering the tests and scoring the compositions. The assignments appear in detail in Section V of the Appendix.

Table VIII gives the number of pupils tested in each grade and in each school, the median score on all assignments for each grade and each school, and the median score on all assignments for each grade regardless of whether the seventh- and eighth-grade children were in the elementary school or junior high school and regardless of whether the ninth-grade pupils were in the junior or the senior high school.

Table IX gives the key number and key title of each assignment, the number of pupils tested on each pair of assignments, the inter-correlation of each pair, the correlations between the scores on each assignment and the median scores on all assignments, the number of cases upon which these latter correlations were based, certain correlations between the Nassau and Harvard-Newton Scales, with the number of cases involved, and the median scores in both Nassau and Harvard-Newton terms on each assignment and on all assignments for each grade and for all grades. In the case of an individual theme, "median score" refers to the median score of eight judges on that theme; "median score" applied to an individual pupil means his median score on all assignments upon which he wrote; while "median score on each assignment for each grade" refers to the median score of all pupils in that grade who wrote upon that assignment.

### Interpretations of Table VIII

1. The median score on all assignments for senior-high-school freshmen who have graduated from the eighth grade of the elementary school is a little lower than the median score on all assignments for elementary-school eighth-grade pupils. This would indicate that the general re-adjustment which elementary-school graduates must make when they enter the high school checks their progress in composition during at least the first half of their freshman year. By the time they become sophomores they seem to have

TABLE IX

Key No. of Assign- ment	Key Titles of Assignments	No. Cases	Pair Correla- tions*	Nassau H-N	Correla- tions* between each No. Cases assignment and all as- signments (Nassau)	Correla- tions† between Nassau and H-N Scales
1A	The Funniest Thing I Ever Saw.....	724	.79	{	719	.81
1B	The Saddest Event of My Life.....	724		{	715	.82
2A	A story based upon a picture.....	214	.69	{	219	.78
2B	Another story based upon a picture.....	214		{	215	.77
3A	The Most Exciting Ride I Ever Had.....	310	.76	{	318	.84
3B	The Most Exciting Incident of My Life.....	310		{	309	.82
4A	What I Should Like to Do Next Saturday.....	311	.71	{	313	.76
4B	How I Should Like to Spend Next Fourth of July	311		{	311	.79
5A	Review an interesting book which you have read	309	.70	{	307	.67
5B	Relate an interesting story which you have heard	309		{	313	.71
6A	"Did it happen right in church?".....	424	.79	{	415	.72
6B	"Don't tell Mother, for it would kill her!".....	424		{	416	.79
7A	Finish "Adventure with a Panther".....	441	.84	{	425	.84
7B	Finish "The Old Man's Story".....	441		{	426	.77
8A	Reproduce "Adrift at Sea".....	434	.84	{	419	.85
8B	Reproduce "A Snowball Fight on Slatter's Hill"	434		{	419	.87
9A	road—evening—horse—old house—etc.....	428	.78	{	415	.83
9B	blushed—after school—Mabel—etc.....	428		{	414	.84
10A	My First Lie.....	412	.84	{	405	.78
10B	How I Learned a Lesson.....	412		{	405	.84

11B A Trip to Heaven.....	404}	.80			396	.79	
11B A Conversation with Mars.....	404}				399	.82	
12A A composition on any subject.....	417}	.73			404	.75	
12B Another composition on any subject.....	417}				402	.77	
13A A narration on "Camping".....	459}	.80	.61		451	.77	.67
13B A narration on "School".....	459}				453	.79	.69
14A A description on "Camping".....	459}	.77	.59		457	.84	.80
14B A description on "School".....	459}				459	.81	.55
15A An exposition on "Camping".....	470}	.75	.68		466	.81	.53
15B An exposition on "School".....	470}				464	.79	.75
16A An argumentation on "Camping".....	422}	.70	.67		420	.75	.70
16B An argumentation on "School".....	422}				417	.78	.41
All Assignments.....	13,276				13,688		3,575

\*The probable error of these correlations range between .01 and .04.

†The probable error of these correlations range between .03 and .09.



TABLE IX—Continued

Median Scores in Nassau and Harvard-Newton Terms on Each Assignment and on All Assignments for Each Grade and for All Grades														
Key No. of Assign- ment	Grade 7		Grade 8		Grade 9		Grade 10		Grade 11		Grade 12		All Grades 7-12 7-9	
	Nas.	H-N	Nas.	H-N	Nas.	H-N	Nas.	H-N	Nas.	H-N	Nas.	H-N	Nas.	H-N
1A	4.7		5.4		5.3		6.0		6.1		6.6		5.9	
1B	4.7		5.5		5.0		6.3		6.4		6.7		5.8	
2A	6.0		5.5		5.0		5.5		6.0		6.7		5.6	
2B	5.6		5.6		5.0		5.3		6.5		6.3		5.5	
3A	5.7		6.0		6.4		6.4		6.5		6.5		6.3	
3B	5.5		5.8		6.3		6.4		6.4		6.5		6.2	
4A	5.3		5.5		5.3		5.2		5.2		6.2		5.3	
4B	5.1		5.5		5.6		5.3		5.1		6.3		5.4	
5A	5.5		5.9		4.8		5.2		5.7		6.6		5.4	
5B	5.0		6.0		4.5		5.1		5.0		6.4		5.2	
6A	3.0		5.4		5.2		6.1		5.9		6.5		5.9	
6B	3.2		5.6		5.5		6.3		6.1		6.8		6.1	
7A	3.7		5.6		6.0		6.2		6.1		6.6		6.1	
7B	3.7		5.1		5.5		6.2		6.1		6.7		6.1	
8A	4.0		5.6		5.7		6.3		6.2		6.7		6.2	
8B	4.6		5.5		5.6		6.2		6.4		6.7		6.1	
9A	4.1		5.5		5.7		6.3		6.5		6.7		6.2	
9B	4.3		5.7		6.0		6.2		6.2		6.5		6.2	
10A	4.9		5.9		6.0		6.2		6.4		6.6		6.3	
10B	5.2		6.0		6.5		6.6		6.7		6.9		6.6	

11A	4.3	5.7	6.2	6.4	6.6	6.2
11B	4.1	5.5	6.1	6.4	6.7	6.1
12A	4.7	5.5	6.2	6.6	6.8	6.2
12B	5.0	5.4	6.2	6.5	6.7	6.1
13A	4.8	5.4	6.3		5.2	62
13B	4.5	5.4	6.2		5.0	60
14A	5.0	6.1	76		5.8	70
14B	5.0	5.8	74		5.6	68
15A	4.6	5.6	68		5.3	62
15B	4.6	5.5	69		5.1	60
16A	4.8	5.5	67		5.4	64
16B	4.6	5.0	69		5.3	62
	4.7	†	†	6.2	6.5	6.7
		†	†			6.1**
			†			†

†The values on the various Harvard-Newton Scales not being comparable, composite scores cannot be computed.

\*\*This is the composite score for Grades 7-12 on the first twenty-four assignments only. The composite score for Grades 7, 8, and 9 on the last eight assignments is 5.5.

got their stride again, but there is nevertheless an ultimate loss of at least one semester.

2. Pupils who have come up through the junior high school and entered the tenth grade in the senior high school show no such impediment in their progress in composition. Their improvement is slight, but it is continuous. The data do not enable the comparison to be extended through the eleventh and twelfth grades.

3. The interruption of progress which the junior high school remedied between the eighth and tenth years seems to have moved down to the seventh year. Seventh-grade pupils in the elementary schools slightly excel in composition the first-year junior-high-school pupils. Some time during that year, however, the junior-high-school pupils get their bearings again and outstrip their elementary-school fellows.

On the basis of the results shown in Table VIII, then, it can be said that the junior high school eliminates a certain retardation of progress in composition.

#### Interpretations of Table IX

1. As the correlations between the sixteen pairs of assignments run, that between 1A and 1B is only fairly high; but the correlation of either of these two assignments and the median of all thirty-two assignments is high, while the median scores for the various grades and for all grades show that either of these assignments will produce results generally typical of pupil averages on a considerable number of assignments. Either 1A or 1B, then, would be a pretty reliable single topic upon which to test pupils for marking purposes. They are not fruitful enough to use in classifying pupils.

2. The correlations between Assignments 2A and 2B are comparatively low throughout and their median scores by grades are eccentric, making inadvisable the use of either of these topics for testing.

3. While the pair-correlation between Assignments 3A and 3B is fairly high and those between the single topics and the median of all topics very high, the distinctly varying degrees of attractiveness of these subjects to the different years make them comparatively unsuitable as single tests for all junior and senior-high-school

grades. Fig. VIII shows the curve of achievement on Assignment 3A to be decidedly favorable to younger pupils. While "The Most Exeiting Ride I Ever Had" arouses maximal effort from junior-high-school pupils, older children react indifferently toward it. The Hudelson Scale will, therefore, test most reliably the maximal ability of junior-high-school pupils. While the same is somewhat true of the Willing Seale and the Lewis Narration Scale, they are more suitable, in so far as the topic is concerned, to the senior high school than is the Hudelson Seale.

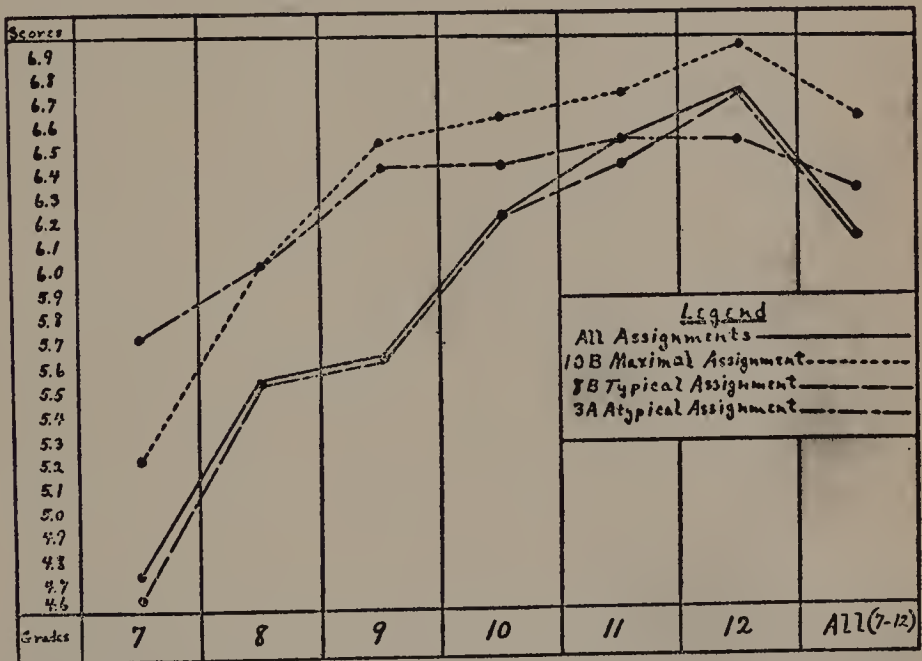


FIG. VIII.—COMPARISON OF MEDIAN SCORES, BY GRADES, ON ALL ASSIGNMENTS WITH MEDIAN SCORES, BY GRADES, ON "MAXIMAL" ASSIGNMENT, "TYPICAL" ASSIGNMENT, AND ONE "ATYPICAL" ASSIGNMENT

4. Pupils' reactions to "What I Should Like to Do Next Saturday" are only fairly indicative of what they will do on "How I Should Like to Spend Next Fourth of July." Results on both assignments reveal reasonably well pupil averages on a large number of assignments. Here again, however, the advantage is with the younger pupils. This would indicate that the Nassau Seale is also particularly adapted to junior-high-school testing.

5. Book reviews and recounted stories afford inferior and comparatively unreliable assignments for either classifying or grading pupils.

6. Compositions based upon overheard remarks, such as those quoted in Assignments 6A and 6B, are fairly reliable criteria of both pupil ability and pupil achievement in the senior high school, but appear to be unsuited to junior-high-school pupils.

7. With the possible exception of the seventh grade, the assigning of unfinished stories to be completed (Assignments 7A and 7B) furnishes a highly reliable single test of typical pupil ability. It would appear, then, that Rice chose his assignment wisely, and that, in this respect, the Breed and Frostic Scale is valuable for both junior and senior-high-school use. Seventh-grade reactions to other assignments appealing to love of adventure, such as Topics 3A and 3B, make the seventh-grade results on Topics 7A and 7B of possible doubtful validity; yet there seems to be little consistency among pupils of that age, whatever the nature of the assignment.

8. Of the thirty-two assignments employed in this study, story-reproductions produce results most indicative of typical pupil achievement in all intermediate and high-school years. Both the pair correlation and the correlations between either topic and the median of all assignments are high, while the median achievements by grades are almost identical with the median scores by grades on all thirty-two assignments. In the case of Assignment 8B the results may, indeed, be called identical. Fig. VIII pictures this condition impressively. It means that a composition based upon that assignment will test a group of pupils of the junior and senior high schools about as reliably as if they were to be scored upon a number of themes.

9. Except for seventh-grade children, the posting of suggestive words to be incorporated in stories also furnishes a reliable single test of pupils' average achievement on a number of assignments.

10. The human interest theme, "My First Lie," appeals more to the still conscientious younger pupils than it does to those in the senior high school. Assignment 10B, however, apparently elicits from children of all high-school ages about the best that is in them. Its high correlation with the median scores on all assignments and



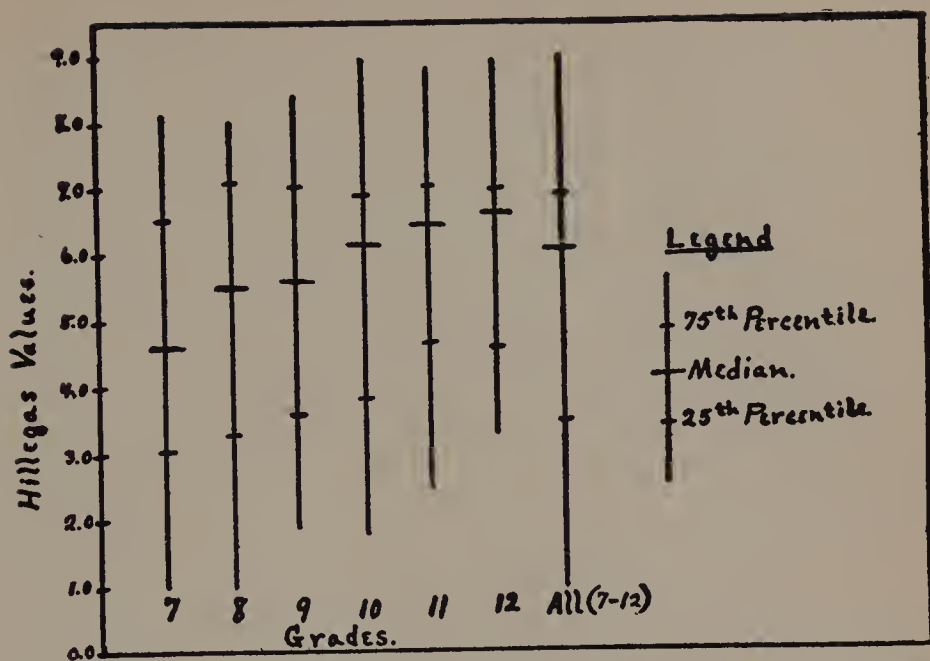
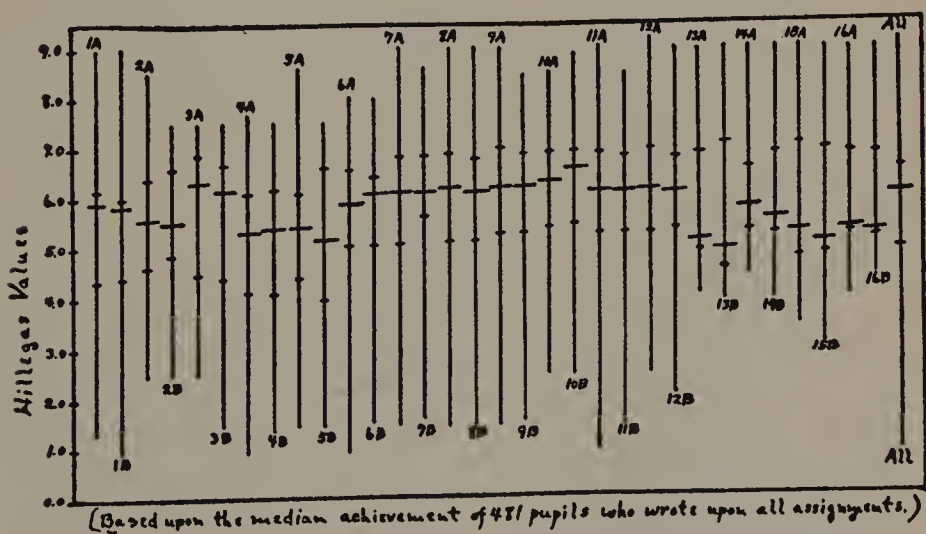


FIG. IX.—RANGE, MEDIAN SCORE, 25TH PERCENTILE, AND 75TH PERCENTILE OF EACH GRADE ON ALL ASSIGNMENTS



its power to produce uniformly superior compositions make this the best of any of the thirty-two assignments for discovering the maximal composition capacity of pupils. Fig. VIII compares graphically the results of this assignment with those of Assignments 3A and 8B and with the median scores on all assignments.

11. Assignments 11A and 11B, like 7A and 7B and 9A and 9B, furnish themes for reliably testing the typical achievement of pupils in all grades except the seventh. The seventh-grade record on the eleventh pair of topics furnishes another example of the fickle tastes evidently characteristic of early adolescence.

12. Contrary to expectations, pupils who are allowed to choose their own theme subjects produce results highly indicative of their average composition achievement. The correlations between pairs of such uncontrolled assignments and the correlations between their medians and the median scores on a number of topics show such an assignment to be a more reliable test of pupil groups than of individuals. This is true of any test, but it seems to be emphasized in this assignment.

13. Narrations based upon camping and school experiences produce approximately typical achievement in seventh-, eighth-, and ninth-grade classes. This prompts the conclusion that composition scales which observe discourse distinctions are not without considerable justification, and that Ballou's and Van Wagenen's narration scales are, in this respect at least, useful devices. On these and the remaining assignments no returns were obtained from tenth-, eleventh-, and twelfth-grade classes.

14. In this, as in all earlier studies of this kind made by the author, children do decidedly better in primarily descriptive writing than they do in themes emphasizing any other of the four forms of discourse. That this is particularly true of pupils of junior-high-school age is shown by the results of the 2A and 2B themes, many of which were as descriptive as they were narrative. The appeal made by camping and school experiences is evidently strong enough to tax the maximal descriptive composition ability of junior-high-school pupils.

15. Expositions on the same two assignments produce results highly indicative of the average achievement shown on a series of

assignments of various discourses; but expository themes on one topic apparently do not reliably predict what the same pupils will accomplish with expositions on other topics.

16. Consistency between the merit of one argumentative theme and another is likewise low. Such assignments do, however, provoke group achievement that is fairly representative of the average accomplishment of the same group on a number of assignments in various discourses.

17. Measured in Hillegas terms by the use of the Nassau narrative scale for general composition merit, seventh-, eighth-, and ninth-grade pupils excel in description, and do about equally well in the other three discourses.

18. A narrative scale will probably measure the quality of narrative themes more reliably than it will the quality of themes confined to or stressing the other discourses.

19. The pair-correlations on the themes observing discourse distinctions (Assignments 13A to 16B) are uniformly lower in Harvard-Newton terms than they are when scored by the Nassau County Supplement. There is also generally a low correlation between the Nassau scores on 108 pupil themes and the Harvard-Newton scores on the same themes by the same judges. These facts do not in themselves prove the superiority of either instrument over the other; but the correlations between the scores on these 108 themes by four trained judges and the scores on the same themes by four other trained judges, recorded in Table VI, Chapter IV, show the Nassau County Supplement to be distinctly more reliable.

TABLE X—RANGE, MEDIAN SCORE, TWENTY-FIFTH PERCENTILE, AND SEVENTY-FIFTH PERCENTILE OF EACH GRADE ON ALL ASSIGNMENTS

Grade	Lowest Score	Highest Score	Range	Median	Twenty-fifth Percentile	Seventy-fifth Percentile
7	1.0	8.2	7.2	4.7	3.1	6.6
8	1.0	8.0	7.0	5.5	3.3	7.2
9	1.9	8.4	6.5	5.6	3.6	7.1
10	1.8	9.0	7.2	6.2	3.8	6.9
11	2.5	8.8	6.3	6.5	4.7	7.1
12	3.3	8.9	5.6	6.7	4.6	7.0
All.....	1.0	9.0	8.0	6.1	3.5	6.9

TABLE XI—RANGE, MEDIAN SCORE, TWENTY-FIFTH PERCENTILE, AND SEVENTY-FIFTH PERCENTILE OF ALL GRADES COMBINED ON EACH ASSIGNMENT  
(Based upon the median achievement of 481 pupils who wrote upon all assignments)

Assign- ments	Lowest Score	Highest Score	Range	Median Score	Twenty-fifth Percentile	Seventy-fifth Percentile
1A	1.3	9.0	7.7	5.9	4.3	6.2
1B	1.0	9.0	8.0	5.8	4.4	6.0
2A	2.5	8.5	6.0	5.6	4.7	6.4
2B	2.5	7.5	5.0	5.5	4.8	6.6
3A	2.5	7.5	5.0	6.3	4.5	6.9
3B	1.5	7.5	6.0	6.2	4.4	6.7
4A	1.0	7.7	6.7	5.3	4.2	6.1
4B	1.4	7.5	6.1	5.4	4.2	6.2
5A	1.5	8.6	7.1	5.4	4.4	6.1
5B	1.5	7.5	6.0	5.2	4.0	6.6
6A	1.0	8.0	7.0	5.9	5.1	6.6
6B	1.6	8.0	6.4	6.1	5.1	6.4
7A	1.5	9.0	7.5	6.1	5.1	6.8
7B	1.7	8.6	6.9	6.1	5.7	6.8
8A	1.5	9.0	7.5	6.2	5.2	6.9
8B	1.5	9.0	7.5	6.1	5.2	6.8
9A	1.5	9.0	7.5	6.2	5.3	7.0
9B	1.6	8.4	6.8	6.2	5.3	6.9
10A	2.5	8.5	6.0	6.3	5.4	6.9
10B	2.5	8.8	6.3	6.6	5.5	6.9
11A	1.0	9.0	8.0	6.2	5.3	6.9
11B	1.5	8.5	7.0	6.1	5.3	6.8
12A	2.5	9.2	6.7	6.2	5.3	7.0
12B	2.2	9.0	6.8	6.1	5.4	6.8
13A	4.2	9.0	4.8	5.2	5.0	6.9
13B	4.0	9.0	5.0	5.0	4.7	7.1
14A	4.5	9.0	4.5	5.8	5.4	6.6
14B	4.0	9.0	5.0	5.6	5.3	6.9
15A	3.5	9.0	5.5	5.3	4.8	7.1
15B	3.2	9.0	5.8	5.1	4.9	7.0
16A	4.1	9.0	4.9	5.4	5.4	6.9
16B	4.5	9.0	4.5	5.3	5.3	6.9
All.....	1.0	9.2	8.2	6.1	5.0	6.6

TABLE XII—PERCENTAGE COMPARISONS OF EACH GRADE WITH EACH OTHER GRADE

Grades	7	8	9	10	11	12
7		39	38	31	26	24
8	60		49	41	35	32
9	74	51		37	33	32
10	65	56	55		40	34
11	74	64	61	55		44
12	73	63	61	56	52	

This Table reads: 39 percent of Grade 7 equals or surpasses the median score of Grade 8; 38 percent of Grade 7 equals or surpasses the median score of Grade 9; 31 percent of Grade 7 equals or surpasses the median score of Grade 10, etc.

20. Most of the composition assignments vary in their appeal to pupils of different ages. Assignments 2A, 2B, 3A, and 3B, for example, are decidedly advantageous to junior-high-school pupils. This characteristic is generally more significant than is the difference between the suitability of the various topics for testing pupils of all grades.

21. The younger a child is, the more unpredictable seems to be the nature of the assignments that will appeal to him. Pupils in the senior high school appear to be less emotional, less discriminating, and less concerned. They take more complacently the assignments they are given.

22. The results of this and other studies reveal a distinct slump in composition improvement in the ninth grade.

23. The most striking facts about the results of this study are the small differences between the median achievements of the various grades on each assignment, the slight differences between the median achievements of the various grades on all assignments, the small differences in the median achievements of all grades combined on the various assignments, and the consequent ranges and overlappings in all cases. Figs. IX and X picture these conditions graphically, Tables X and XI show them in scale terms, and Table XII records the overlappings in percentages. There is far more difference on each assignment and on all assignments between pupils in any one grade than there is between the medians of the seventh and twelfth grades. This supports Thorndike's contentions (42):



“The paragraph writing of pupils in our high schools and that of the world’s hundred best English writers undoubtedly overlap considerably in merit. . . . In the judgment of high-school teachers of English, the worst tenth of paragraph writing of high-school pupils is nearly half way from zero toward the best the world knows. What we rightly consider a mediocre composition still represents nearly three-fourths of the progress possible. . . . The world pays enormous sums in money and fame for a difference so small that one person out of four cannot see it.”

Haggerty and Van Wagenen (23) also found this condition so marked that they rightly concluded:

“While the amount of growth in ability in composition writing seems, when thus more objectively and more accurately measured than is usually the case, comparatively small, it must be borne in mind that growth in ability to write composition is a very complex thing.

“It not only includes a wider range of information about a large number of topics, an accumulation of new insights and points of view from which the new as well as the old information may be interpreted; it includes also among other things an increased vocabulary of names attached to newly isolated elements and relationships, new habits of combining words to express such new relationships as well as familiar ones in a way that they become clear to others, the correction of faulty habits that violate approved usages in language, the wider and clearer comprehension of language elements and their proper marks of punctuation upon which even competent students of English do not agree. When one considers the amount of time and effort that are necessary to gain a limited amount of information, the paucity of insights that people in general acquire during a brief period of a few weeks, the large expenditure of time and effort that is required to form a few new habits and the still greater expenditure that is necessary to correct well established faulty ones, it is not surprising that the amount of growth in composition ability that results from

a few weeks' practice in theme writing is very small indeed when measured on a scale of general merit in English composition.

"While the gains in certain phases of composition ability may seem to the teacher of English much more marked than these results seem to indicate, they may be largely masked by a seemingly small gain in the thought content phase of English composition ability, a change which, in reality, represents an enormous change in the individual."

### CONCLUSIONS

With whatever limitations, then, the thirty-two somewhat arbitrarily selected but diversified and representative composition assignments impose, the aims of this study have been realized. A composition assignment has been found which will produce themes that are typical of the median quality of themes that a group of children will write on a large number of topics. This means a topic on which a group of pupils will do as well as their average score would be for, say, a whole year. This one assignment should test junior-and senior-high-school pupils as reliably as if they were to be tested a number of times and their median score taken as their grade.

The other discovery is a topic which will reveal pupils' maximal<sup>2</sup> abilities in composition. Such an assignment will show how well pupils can possibly write when their interests are fully aroused and all their energy is being expended. This assignment will furnish a basis for classification; then the other assignment may be used for determining the degree to which pupils exercise their full capacities.

Since the most reliable measurements can be made when the samples in the scale are based upon the same assignment that has been used for testing, there is need for objective scales on the two topics mentioned above. Such scales have been devised, and, together with instructions on their use, appear in Chapter VI.

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<sup>2</sup>The term "maximal" should here be considered relatively. It is maximal when compared with the other thirty-one assignments. There may be topics which will evoke still more meritorious responses.

## SUMMARY

Results obtained from studies based upon all composition scales existing heretofore have shown only how well pupils have written upon the topic assigned; they have not consciously and confidently proved how well pupils can possibly write. Teachers of composition need to know this before classifying their pupils. Then, after the children have been grouped according to their highest abilities in writing, teachers need an objective scale to enable them to determine accurately from time to time the degree to which their pupils are exercising their full capacities. This knowledge, expressed as it will be in terms of effort, will furnish the teacher a reliable basis for justly grading his pupils within their group. Objective instruments, called hereafter the Maximal Composition Ability Scale and the Typical Composition Ability Scale, have been devised to aid English teachers in performing these functions. The two scales, together with instructions on their use, appear in Chapter VI, and practise lists for untrained teachers are published in Section VI of the Appendix.

## CHAPTER VI

### OBJECTIVE SCALES FOR MEASURING COMPOSITION ABILITIES

#### THE DERIVATION OF THE SCALES

When a teacher of any subject undertakes to classify his pupils, he should employ reliable means for discovering the highest level in his subject to which those pupils can attain. Such means have been devised for discovering maximal mental capacity, and are now being widely used under the name of intelligence tests. No such instrument has heretofore been consciously designed in the field of English composition. The scales that are in use measure achievement, but not necessarily ability. They show how well children *do* write, but not assuredly how well they *can* write. It is to show pupils' maximal capacity for writing that the first of these scales—the "Maximal Composition Ability Scale"—has been devised. Its samples are based upon that one of thirty-two varied and representative assignments which produced the highest median quality of composition from 770 junior- and senior-high-school pupils.

After pupils have been homogeneously grouped according to their highest ability in composition, it becomes the concern of their English teacher to employ the best methods of encouraging them to exert their full powers. As a scientific guide for testing the efficacy of various methods of instruction and as an index for determining the amount of effort his pupils have expended, an English teacher needs a scale representing typical pupil ability and arousing typical pupil interest. For thus testing methods of teaching composition and for grading pupils within their group, this "Typical Composition Ability Scale" has been devised. The specimens in it are based upon that one of thirty-two representative assignments which inspired responses most typical of the average quality of composition work done on all assignments by nearly eight hundred pupils. Themes based upon this single assignment will,

therefore, provide about as reliable a test of pupils' practical composition ability as could be got by averaging their theme grades for a year.

These scales are composed entirely of themes written by elementary, high-school, and university students in various parts of the country. After the two scale topics had been determined upon, samples were chosen which represented, according to the median judgment of at least eight teachers, varying degrees of general composition merit. Fifty themes on each topic were carefully reproduced, and mimeographed copies sent to exactly two hundred composition teachers in all parts of the country who are trained in the use of composition scales. These two hundred teachers scored the one hundred themes by the Hudelson Composition Scale. They were instructed not to interpolate values, but to assign to each mimeographed theme the exact value assigned to that sample in the scale to which the mimeographed theme most nearly compared in general composition merit. One hundred of the teachers scored the themes in one order, while the other one hundred scored them in reverse order.

The values assigned to the samples in the two scales represent the median judgments of the two hundred trained scorers. Those themes were selected for the scales whose median scores represent uniform degrees of merit. When more than one composition received the same median rating, that one was chosen upon which the judges agreed most closely. The values of the samples are expressed in Hillegas terms, and do not, therefore, bear any intentional relation to the percentage basis of scoring.

#### WHY TO USE THE SCALES

These scales are but means toward ends. The most important of those ends are (1) to test impartially the various methods of teaching composition by measuring their results; (2) to measure those results in accurate, objective, stable, and understandable terms; (3) to furnish a common basis for comparing the writing proficiency of different pupils within the same class or school or that of pupils in different classes or schools; (4) to classify pupils fairly in composition; (5) to grade them justly within their group;



(6) to enable teachers to discover their reliability in judging the general merit of English composition; and (7) to furnish pupils an incentive to self-competition. The Maximal Composition Ability Scale is designed particularly to accomplish aim number four, while the Typical Composition Ability Scale is especially adapted to the realization of aim number five. Both scales are equally suited to the attainment of the other five aims.<sup>1</sup>

### WHEN TO USE THE SCALES

Being derived from the results of group tests, these scales, like any others, will be most reliable when used to determine the ability of classes or schools. In dealing with individual pupils even highly trained judges will do well to use the median judgment of at least three trained scorers, and to supplement the results of the composition test with intelligence scores and with the marks of competent teachers on their classroom work. But one application alone of either of these scales will determine a single pupil's classification or grade more reliably than is possible by the use of only subjective, personal composition standards.

Objective scales should be used only at intervals sufficient to show progress. Being devoid of the personal equation, they are not adapted to daily instruction or even to weekly use. They are designed to give an impersonal evaluation on ability or accomplishment; hence the Maximal Ability Scale should be used at the beginning of the term for grouping pupils advantageously, and the Typical Ability Scale should be used, say, at the close of the term when the teacher needs to grade a pupil reliably upon his effort.

### HOW TO USE THE SCALES

A teacher should first of all thoroughly familiarize himself with the scale that he intends to use. He should then test his reliability in scoring by this instrument. For this purpose several Practice Lists have been inserted in Section VI of the Appendix to this volume, with a key-list of correct scores following them. A

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<sup>1</sup>For a fuller discussion of the functions of composition scales, consult Chapter III. See also *Hudelson English Composition Scale*, pp. 21-22. World Book Company.

teacher should score the first set of practise exercises, then compare his judgments with the scores in the key. If his systematic error<sup>2</sup> is more than .5, he should continue to score practise exercises until he has satisfactorily reduced his error.

For purposes of comparison, a list of schools whose pupils have been tested in composition by the use of the Hillegas Scale or one of its derivatives is published in Section VII of the Appendix. Table XIII gives the national January standards for the various school grades. In testing pupils for the purpose of comparing their results with the standards, it is important that identical conditions, assignment, and procedure be observed as far as possible. The assignments and procedure used in administering the tests from which these scales were derived are, therefore, repeated here.

#### MAXIMAL COMPOSITION ABILITY SCALE ASSIGNMENT

When your pupils have been supplied with writing materials, say to them: "I want you to write me a story. I am going to give you the title, which you are to write down. You will then be given fifteen minutes in which to write the best story you can on that subject." The title is "How I Learned a Lesson." At the end of fifteen minutes collect all papers promptly.

#### TYPICAL COMPOSITION ABILITY SCALE ASSIGNMENT

When your pupils have been supplied with writing materials, say to them, "I am going to read you a story. Please listen carefully while I read it, for when I am through I want you to write it in your own words. I have already written on the blackboard the title of this story and the proper names that occur in it." Then read clearly the following story:

#### A SNOWBALL FIGHT ON SLATTER'S HILL

Slatter's Hill, or No Man's Land, as it was generally called, was a rise of ground covering perhaps an acre and a quarter, situated on an imaginary line marking the boundary between the North End and the South End of town.

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<sup>2</sup>For detailed instructions on how to establish one's reliability on the Hillegas Scale or any of its derivatives, consult *Hudelson English Composition Scale*, pp. 20-27. World Book Company.

One evening twenty or thirty of the North Enders quietly took possession of Slatter's Hill, and threw up a strong line of breast-works. Fancy the rage of the South Enders next day, when they spied our snowy fort, with Jack Harris's silk handkerchief floating defiantly from the flagstaff! In less than half an hour it was known all over town, in military circles at least, that the South Enders intended to attack the fort that Saturday afternoon.

At two o'clock all the fighting boys of the North End, and as many recruits as we could muster, lay behind the walls of Fort Slatter, with three hundred snowballs piled up, awaiting the approach of the enemy. The enemy was not slow in making his approach,—fifty strong, headed by Mat Ames. Our forces were under the command of General J. Harris.

The thrilling moment had now arrived. The fort opened fire first,—a single ball from the hand of General Harris taking\* General Ames in the very pit of his stomach. A cheer went up from Fort Slatter. In an instant the air was thick with flying snowballs, in the midst of which we dimly saw the storming parties sweeping up the hill, shoulder to shoulder.

Not more than a dozen of the enemy succeeded in reaching the crest of the hill; five of these clambered upon the icy walls, where they were instantly grabbed by the legs, jerked into the fort, and made prisoners. Twice we were within an ace of being driven from our stronghold, when General Harris and his staff leaned recklessly upon the ramparts and hurled the besiegers heels over head down the hill. The rest retired confused and blinded by our well-directed fire.

At sunset the garrison of Fort Slatter was still unconquered, and the South Enders marched away whistling "Yankee Doodle," while we cheered and jeered them till they were out of hearing. When General Harris, with his right eye bunged up, said, "Soldiers, I'm proud of you!" my heart swelled in my bosom.

The battle passed into a legend; and afterwards, when later instances of pluck and endurance were spoken of, the boys would say, "By golly, you ought to have been at the fight on Slatter's Hill!"

Collect all papers promptly at the end of fifteen minutes.

TABLE XIII—NATIONAL COMPOSITION STANDARDS<sup>a</sup>

Grade.....	IV	V	VI	VII	VIII	IX	X	XI	XII	Month
Quality.....	3.0	3.6	4.2	4.7	5.3	5.5	5.9	6.3	6.7	January

<sup>a</sup>These standards represent the curve of progress, slightly smoothed, of the composite scores of the schools listed in Section VII of the Appendix.

When the teacher is ready to score themes, he should place the scale before him, review it, read the first theme to be scored, compare it with the scale samples one by one, and give it the value of that scale sample to which it most nearly compares in general composition merit. The steps on these scales are fine enough that for group testing a teacher need not interpolate values. When a teacher has become expert with the use of a scale he will not need to begin with the lowest sample and consult each step in order, but can go at once to that part of the scale which contains samples approximately equal in quality to the theme to be scored, and by studying the two or three consecutive samples in that level of the scale, can quickly assign the theme its appropriate score.

In grading an individual, the scale value of his composition, preferably checked by his intelligence rating and teacher-marks, will be his composition grade. In group testing, the median score is the best one to use. This can be had nearly enough for all practical purposes for groups of considerable size by arranging the scores in ascending or descending order, and taking the score of the middle paper as the composition grade for that class. If there are an even number of pupils in the group, the average score of the two middle papers will represent the practical median.

If the object of the test is to compare one's pupils with the standard for their grade, the only remaining step is to consult Table XIII. If, however, one wishes to test various methods of instruction or to measure pupil progress from time to time, it is recommended that, rather than repeat the assignment previously used, another topic be chosen from Table IX which produces results closely comparable to those produced by the assignment upon which the scale is based, and that the themes written upon this new assignment be scored by the Typical Ability Scale. Assignments 1A, 1B, 7A, 7B, 8A, 9A, 9B, 11A, 11B, 12A, and 12B will all yield compositions comparatively typical of the average achievement of junior- and senior-high-school pupils, and are, therefore, fairly reliable guides for grading. For classifying pupils, Assignment 3A is a reasonably reliable criterion. Themes based upon it should be scored by the Maximal Composition Ability Scale.



MAXIMAL COMPOSITION ABILITY SCALE

0.002

SAMPLE 1

How I Learned a Lesson

0.0

Me and sorm orf frinds wise arm the ic and my fit slep  
om the burk it I get wite to I gort did not my han out Bad  
I hare noct goit arm the it after that our e the water.

0.992

SAMPLE 2

How I Learned a Lesson

1.0

I stop in the maltel of the street and a man cone to pase  
me and he hate ne and I kawt hin ofte the road and he  
hadnearrested and I burght njji witness and I wast bate  
coses nj witness sade and I know I was in the maltel of the  
road and I hade to pay \$14 and 60¢ and I know I wont  
stop in the maltel of the street any more.

2.013

SAMPLE 3

How i learn a lesson

2.0

When I chewed tobacco and they found it owt they  
whipped me for about fifteen minnutes with popo bush.  
they broke ten switches out on me. but i kept on chewing.  
They found it out and my papa and Mamma whipped me  
for abowt twenty minnutes and learn me a lesson.

3.023

SAMPLE 4

How I learned a lesson.

3.0

One day I left here to go to Buckhannon in an auto-  
mobile. And as I was driving up the mountain in second  
gear the car become very hot. so I stopped about two thirds  
the way up and got some water in a stream below the road  
and I took the radiator eap off. hot water flew all over  
me bunning my face and hands. I filled it with water and  
went an. but I learned a lesson. that is never take a eap  
off the radiator when it is steaming and I learned another  
thing never fill a hot motor with water. wait till it cools.  
for my motor stuck on that account.



2.998

## SAMPLE 5

## How I Learned a Lesson

3.0

One night I wanted to go to the movies. There was a quarter laying on the kitchen cabinet. I picked the money up and wnet to the show. When I come back mother ask me where the money was. I said "I got it and went to the movies" She said "well you won't get once more money this week." Now I ask her for money when I want ony.

3.997

## SAMPLE 6

## How I Learned a Lesson,

4.0

One night not long agoe I was in town with my small brother Hugh, of about five years of age. He wanted as he always does candy peanuts and things too eat. So I got him about two lb. of candy and a large bag of peanuts and some chewing gum. Then we went and got some ice cream. After that we went to the show and all thro the show he and I sat and ate the diferent things I had bought. After the show was over we still had some left but we took this home and ate it all before going to bed. The next morning I couldent get up & Hugh felt very bad. The doc. came and pronounced our trouble indigestion. And Oh! the nasty medicine we had to take! This taught us a lesson "That all who dance must the fiddler pay."

4.038

## SAMPLE 7

## How I Learned a Lesson.

4.0

It is said that experience is a dear teacher and *that* is one of the lessons I learned along with the real lesson,

One day I came home from school (as I have been in the habit of doing for the past eleven years) to find the house locked. When our hoùse is locked up and the familly go out there are just two ways I know of to get in. The first and by far the easiest is to get the particular key that belongs to the lock in the front door and after inserting it in the lock, turn it, push forward and the door will come open. If a key cannot be obtained there is just one way left, as I know of (and I have had years of experience) and that is to get a good heavy brick and heave it thru the window. Not that I have ever tried this method but its the only sure remidy left as I *Have* tried all the others that my brain could conjur up

4.007

SAMPLE 8

How I Learned a Lesson

One day I said I wasn't going school any more. Mother said I had better keep on going to school, but I didn't want to go to school.

4.0

Then I went to wrok and worked about one year so I got tired and quit working. Then when I wanted to back to work I could not get a job. Then I went to onather place and they ask if I had a high school education, I told them no. They said you had better go to school and get one. I went back home and started to school and I did not quit until I got a education.

5.038

SAMPLE 9

How I Learned a Lesson

5.0

Two years ago I worked for a meat shop. Every day I spent a good deal of money on such things as soft drinks, ice cream, and other good things. I did this all summer. My mother warned me against it, but I kept indulging in these things.

By the time school sommenced I began to have stom-ach trouble. Mother made me quit eating anything I wanted, and kept me on a diet. Finally I was cured of the trouble. Since then I do not 'eat drink and be merry,' as much as then.

4.991

SAMPLE 10

How I learned a Lesson

5.0

One evening my brother and myself were going after the cows. We had to cross a railroad track. At this time of the evening no trains were due. I was walking (better say galking) along about three feet in front of my brother. My mind was taken up by some subject. I don't remember what. (When I finish this story you will understand why.) When like a bolt out of a clear sky I heard some-one roar, "Look out you idiot where you're going." I stopt dead still about one foot from the railroad track. Just then the yard engine silently went by. One more step and I wouldn't be writing this composition. If any look ever said, "You crazy idiot." The look the men on that engine did. I went on feeling like one.

It was proved to me that "Experience is a dear teacher but fools will learn from no other.

5.0265

## SAMPLE 11

## How I Learned a Lesson

5.0

This holiday business had learned me a lesson. I have missed one class in the first semester. This morning Mr. Lockhart got up in our assembly period and announced that all the students of Bloomville High School who had not missed a class or been tardy during the first semester would get a holiday on Friday, while the other poor "boobs" would have to come to school as usual. The one class that I had missed was cooking. It was not absolutely necessary. I'll wager that the next semester if anyone gets a holiday the second semester, Ruth Simpson will be one of them!

5.991

## SAMPLE 12

## How I Learned a Lesson.

6.0

When I was about four years of age Father and I were strolling in the woodland one beautiful spring day when we came upon a plot of ground blue with bluets. Now, I am never more pleased than when I am near flowers, so I started to pick some of the bluets. Father warned me not to go close, as there were bees on the flowers, and they might sting me; but I paid no heed. I was having a glorious time, when all of a sudden a bee became affectionate with me and sat down good and hard on my hand. This taught me a good lesson, for since that experience I always try to keep as far as possible from bees.

6.036

## SAMPLE 13

## How I Learned a Lesson.

6.0

A few years ago While at my home on the farm, I learned a very useful lesson in obedience.

My sister and I often slipped out to skate on the crust on the snow. We had an apple orchard against the hillside a little ways from the house. One morning when we got up the rain had made the crust over the snow just like ice. So my sister and I decided to slip out before school and go, "crust skating." Mother had told us to stay off the snow crust as it was dangerous, but we did not do it. We went to the top of the orchard and started down the hill. It was very nice, until my toe broke through the crust and threw me headlong down the hill. I fell flat on

my face and as it was so smooth, and down hill, I did not stop but kept on sliding, lying face downward, until my shoulder and side of my head, struck an apple tree. This whirled me around with my feet down the hill, and stopped me. I lay unconscious for about half an hour. When my senses came to me my sister was standing by me, scared green. Under the old apple tree we made a pledge, to obey our mother and this pledge we are still trying to keep.

5.994

SAMPLE 14

How I Learned a Lesson

6.0

I went to the store one day for my guardian, and as I was yet small, I was told to watch for the train when crossing the bridge. I was with a little girl friend and paid no attention to the advice. We went on to the store, and started back home. When we were about half-way across the bridge we saw the train coming very near us. We could neither go on nor go back. The only thing we knew to do was to jump off. The jump didn't hurt us, but the narrow escape scared us and we learned a valuable lesson.

6.997

SAMPLE 15

How I Learned a Lesson

7.0

One evening in June I walked down the road with another fellow's girl. I thought I was doing something wonderful to take a girl right away from somebody else.

We had walked slowly for about an hour when I noticed an automobile approaching at high speed. The driver acted as though he wanted to go someplace and get back, all in the same day. When he came closer I saw that it was my girl's beau. I began to get shakey about the knees and then to turn white. I could almost feel myself losing my color, for he was a large fellow. He was a lot larger this time than he had ever been before.

He drove up alongside of us and asked if we would like to ride. Of course, the girl blurted out that we would be delighted. We rode around for some time and then went to the girl's home. She fed us on ice cream and cake and made us feel as if we were the only two people she thought anything of.

At last the time came for going home. This young fellow who called himself a close friend of mine and I left at



the same time. We got into his machine and drove around the town for a time. My nerve was just getting back where I could talk, when he stopped in a secluded place and said that he would like to have a few words with me. My honor at stake, I said, "Certainly." We climbed out of the car, and then and there he gave me the licking of my life.

7.049

## SAMPLE 16

## How I Learned a Lesson.

7.0

Ruth was, and is, without doubt the best friend I ever Had. For years we were devoted to one another. Always she aimed to please me in small things and to share willingly every sorrow or glad sacrifice. It is that which makes friendship a dear thing.

After a long spring spent together in the bonds of close friendship we parted for the summer, each promising to write faithfully. I did not keep my promise. In the happiness of my vacation I neglected her letters. I did not even think of her.

My carelessness did not change her attitude towards me. She was always governed by that sweet simplicity and sincerity which is so essential in a true friend. Never did she speak unkindly of me, nor would she hear me spoken unkindly of.

Before many months had passed I realized that in my carelessness I was destroying a true friendship. In the bigness of her heart she forgave me; but I learned that there is nothing so dear as a loyal friend.

8.010

## SAMPLE 17

## How I Learned a Lesson.

"Aw, come on! What's the matter, fraid you'll get your feet wet?"

8.0

Jack Horton shouted to me from a hundred feet out in the river. He was going to see how far he could wade on a ledge of rock jutting out from the south bank. I was standing in the edge of the water, eager to follow him, but reluctant, for Father had given me the strict injunction not to venture beyond my depth.

With a disdainful glance at me Jack turned and began wading out into the stream. His contempt hurt, for I knew I was a better swimmer than Jack.



"What's the difference anyway," I ejaculated. "Father will never know." I threw aside compunction and waded out into the water.

Jack was many yards ahead of me, so I waded rapidly to overtake him. As the water rose to my hips, then to my shoulders, the current became so strong I could scarcely keep my footing. Finally the water reached my chin. Jack was swimming down the middle of the river toward the beach where the other boys were. They were watching me, so I followed him.

The distance had not been half covered when I began to feel tired. In attempting to turn onto my back to rest I dipped my nose into the water, and strangled. Jack was fifty yards away. I was in the very middle of the river and the current seemed to be carrying me away from the beach. A poignant sense of fear passed through me, and with it came the thought of my father's command. I remembered how Bryan Gordon, one of the best swimmers in town, had drowned at this spot five days before at five minutes past three. Bryan, too, was his parents' only child.

It was only with the greatest difficulty that I composed myself, blew the water from my nose, and turned onto my back to rest. I finally reached the bank, completely exhausted from fright and fatigue. As I struggled out of the water I resolved never again to disobey a command of my father.

8.991

SAMPLE 18

Grub Hollow's Lesson.

When I sat down to think over the experiences of my life that have been profitable to me my memory wandered back to one of the big lessons that I learned when I was yet a little child.

I was in the sixth grade in a little country school. Here I mingled with children from all stations in life and made friends with them all. There was, however, something insincere about my friendship for the poorer children. It was due, I now believe, to a feeling of superiority over them. I resented the ravenous manner in which they ate their lunches I divided with them; I detested their furtive glances when we talked; and I could not tolerate their tendency to lie. In all, they had an uncouth bearing that I could neither understand nor forgive.

9.0

That spring our teacher invited me to go with her while she took the enumeration. After visiting a number of homes we came to a place called Grub Hollow where several of our school patrons lived. In one little shack we found the family huddled around a little stove, the walls and floors bare, and everything most squalid and depressing. In another, a dirty, miserable hovel, we found a blind father, an indolent, flabby mother, and three mangy children. Finally we found a family of fourteen living in one room amid unspeakable conditions.

On our way home Miss Marxson was strangely silent, and, child that I was, tears stood in my eyes. I had heard "the still sad music of humanity," and it had given me a new understanding. Never again did I feel haughtily toward those children; and all through life that experience has modified my judgment of human conduct.

TYPICAL COMPOSITION ABILITY SCALE

0.009

SAMPLE 1

0.0

a Suerwbal biaht on Stters ile,  
scuball ard the boy sur and the boy the hag at the fors fon  
boys the gain soe sunbright.

0.997

SAMPLE 2

1.0

a smow roll Fight om slatters hill  
the boys wen up there am they had about a 150 smow-  
balls arn Jack Harris hit Mat ames right im the stomict  
the they had smow balls goming fron side to side am about  
sunset the boy wer I happy am ome with his eye all with a  
rag around it the Gernorl what find soldiers I got they went  
down the Hhill playing Yonce doe dolle dod

2.009

SAMPLE 3

2.0

A Snow battle on Slatters Hill  
The south end boy said that they could lick the north  
end boys so the North build a fort on Slattye hill. On the  
after noon of wednesdy The South advance with their boys  
which was fifty strong. The first ball was fired by our gen-  
eral Harrison who jit the South general in the pit of the  
Stomact and this started the fight. that night the marched  
of defeated.

3.0025

SAMPLE 4

3.0

A Snowball Fight on Slatter's Hill.  
There was some boys out one day and they thought that  
they would have a snow-ball fight. They planned that it  
would be on Slatter's hill. After awhile they said there  
were enough so they would begin. They appointed Mat  
Ames on one side for Captain and Mr. Harris on the other.  
When the game began the boys on Mr. Ames side had over  
three hundred. They began and some would fight hard and  
other's wouldn't. One of the men on Mr. Ame's side hit  
Mr. Harris on the side of the face. But he fought right  
ahead. Then they all got tired and they said they would  
quiet. But when they started out Mr. Harris said he was  
proud of them. If he did get hit.

3.019

SAMPLE 5

## A Snowball Fight on Slatter's Hill

3.0

Slatter's hill is sometimes called no mansland is the northern part of the city. It covers about an acre land. One day their was a snowballing their. All the boys in the city made them a fort and three hundred snowballs ready for the enemy. The enemy was not long in approaching. The one at the head of the enemies army threw the first snow and hit the other sides captain. The boys in the city won and as the enemie went back they were whistling Yankee Dootle.

4.008

SAMPLE 6

## A Snowball Fight on Slatter's Hill

4.0

The boys that lived in the south end of the town built a snow fort and had three hundred snowballs ready for their attack against their enemies, the boys from the North end of town. As their enemies passed they hit the leaden the very first one and then started on the rest. Not more than a dozen reached the fort and they were taken prisoners. After that when any fight was talked about the boys would always mention the Fight on Slatter's Hill.

4.029

SAMPLE 7

## A Snowball Fight on Slatter's Hill

4.0

Slattes Hill was a small hill which overlooked a villige are small town. One night the boys of the north end assembled and built a large fort on Slallars hill. The next day Jack Harris with all the forces he could muster laid behind their fortifications awaiting the approach of the enemy. They did not have to wait long till they saw Mat Ames approaching followed by fifty boys of the South end. When Mat came within fireing distance General J. Harris hurreled a snowball which struck General Ames in the pit of his stomach. The South end boys were defeat. But when one wanted to boast of his endurance he would say, "Oh by Golly you ought to been at the fight on slatters hill."

4.000

SAMPLE 8

A Snowball Fight on Slatter's Hill

4.0

The north enders had built a fort on top of Slatter's hill which covered about one acre.

The next morning when the south enders found out that the north enders had built the fort they started to get the army together.

With about fifty they attacked the fort. Several boys were taken prisoners.

With Jack Harris as leader of the northenders they won. after the battle Jack had a bunged eye but he praised his men much for the work they had done

4.997

SAMPLE 9

A Snowball Fight on Slatter's Hill.

It was on Slatter's Hill that the Battle took place.

Slatter's Hill is the boundary line between the North End and the South End.

5.0

We took possession of the hill one afternoon and made us a fort of snow. Under the command of Colone J. Harris we made plenty of ammuniton. Some three hundred snowballs.

The South End was enraged when the saw what had happened and the silk handkerchief that floated on the flagstaff waved defiance to the enemy. The resolved to attack the fort that afternoon and under the brave and daring command of Mat Ames they climbed the height. They were slowly advancing toward our strong hold while we lay in wait.

Each man was well supplied and the orders were not to be sparing with the ammuniton. As Ames led his men nearer and within range of the fort. Our noble commander jumped upon the breast works and took daedly aim at the advancing officer of the enemy.

The aim was fatal for the spinning showball hit its aim and the enemys leader went rolling down the hill.

This confused the enemy and our captain took advantage of the situation and ordered rapid firing on them. This being done the enemy was soon put to flight except a few who were climbing the breast works. And they were captured.



5.004

SAMPLE 10

## A Snowball Fight on Slatter's Hill.

Slatter's Hill was situated in the center of town on an imaginary line dividing the North End from the South End.

5.0

One night the boys of the North End quietly took possession of the hill and erected a fort. The next day the enraged South End boys prepared an attack for two o'clock, to be led by Mat Ames.

There was great excitement, and the General of the Northners, Jack Harris, was the only cool one of the bunch. The South End boys marched up the hill sholder to sholder and opened fire on the fort. Thus the battle raged. The South Enders were near driving us out once or twice, but the bravery of our General J. Harris and staff saved the day, and the Battle of Slatter's Hill went down in history.

5.029

SAMPLE 11

## A Snowball Fight on Slatter's Hill.

One afternoon about four o'clock the North Enders decided to attack the South Enders with snowballs.

5.0

Jack Harris, a tall skinny shap, was general of the North Enders, and Mat Ames, who looked like a tub of butter sitting on two match-sticks, was leader on the South Enders.

The North Enders opened fire upon the fort of the South Enders, which was situated on the crest of Slatter's Hill, and such firing was never seen nor heard of before in that section of the country.

The first ball thrown by the North Enders hit General Mat Ames right in the pit of his stomach, and he let out a yell like someone was being murdered. The fight continued, and the North Enders all had their faces washed by their captors. Tje captives were made to march in front of the North Enders on their way to prison.

So, ended the battle of Slatter's Hill.

5.997

SAMPLE 12

## A Snowball Fight on Slatter's Hill

"Slatter's Hill was a rise of ground covering prhaps an acre and quarter of ground, generally termed "No Man's Land."

**6.0** "One Night the North Enders under command of Jack Harris quietly took charge of the hill and erected a strong snow fort. Fancy the chagrin of the South Enders next morning when they saw the North Enders in possession of the stronghold. News traveled rapidly and soon it was learned that the South Enders under command of Mat Ames would attack the following Saturday.

"Saturday came and there was about thirty of we North Enders in the fort and a pile of about three-hundred snowballs. About 2 p. m. the South Enders made their attack, fifty strong and charged the fort. A well directed snowball from the hand of General J. Harris took General M. Ames in the pit of the stomach and the fight was on. The fight waged fiercely and thrice we were almost driven from the fort. But the boys fought gamely and we defeated the South Enders who marched away whistling "Yankee Doodle", and we jeered them as they went."

"After the fight General Harris paying no attention to his black I said "Men I'm proud of you"

After that when any deed of bravery or pluck was mentioned the boys would say, "Golly you ought to have been at Slatter's Hill"

5.994

SAMPLE 13

### A Snowball Fight on Slatter's Hill.

**6.0** Slatter's Hill was a barren sort of place, a kind of "No Man's Land." This hill was the imaginary boundary line between the North and the South Ends of town. Each End had been trying to obtain possession of Slatter's Hill.

One evening the North End, under command of Jack Harris, took possession of Slatter's Hill. They immediately built breastworks of ice and snow. The next afternoon the South End, fifty strong, came up presumably to take the Hill away from the North Enders. A terrible snowball fight ensued, during which several people were taken prisoner; but when the terrific battle ended the North End was still in possession of Slatter's Hill. The only casualty was the bruised eye of Jack Harris. Jack said, "I'm mighty proud of you boys and shall never forget the fight on Slatter's Hill."

6.023

SAMPLE 14

**“A Snowball Fight on Slatter’s Hill.”****6.0**

Slatter’s Hill was a small rise of ground separating the North End of town from the South End. One morning the North Enders took possession of Slatter’s Hill and built a strong fort, erecting as a flag, Jack Harris’ silk handkerchief. When the South Enders heard of this they were very angry and challenged their opponents to a battle.

At two o’clock General Harris informed us that the enemy was approaching. we opened fire, and then Gen. Jack Hurler a snowball, which hit Mat Ames right in the pit of the stomach. Now Mat Ames was General of the South Enders and they were very indignant when Jack opened fire. For the next hour and a half nothing could be seen but flying snowballs. But the enemy were as brave as we. Five or Six of them made a rush and came over the top of the fort, but they were soon captured and made prisoners.

At six o’clock the battle ended and the victory was ours. General Harris claimed no honors for himself but complimented us all on our brave fighting. But it was the first shot of his that gave us courage.

7.046

SAMPLE 15

**A Snowball Fight on Slatter’s Hill.****7.0**

Slatter’s Hill, or No-Man’s-Land as it was sometimes called, stands in the center of town. One morning after a heavy snow the Northenders, led by Jack Harris, took possession of the hill and erected a snow-fort upon it. The news spread, and the Southenders, under the command of Mat Ames, accepted the challenge and prepared to storm the fort.

At two that afternoon the Southenders began to ascend the hill in battle formation. General Harris opened fire by hitting General Ames in the stomach with one of the three hundred snowballs prepared for the engagement. Then the struggle waged fiercely. Twice we were nearly dislodged from our stronghold, only the gallantry of our General and his staff saving us. Twelve of the enemy assaulted our very walls, but five of them were seized and made prisoners, while the rest fled. At sunset the fort was

still unconquered and the thinned ranks of the enemy finally retreated.

Above the confusion I heard our General say, "My coldiers, I'm proud of you," and my heart swelled with pride.

7.034

SAMPLE 16

### A Snowball Fight on Slatter's Hill.

7.0

The rivalry which existed between the Northenders and Southenders was intense. Both were expectant and suspicious. Their battleground, or No-Man's-Land, was Slatter's Hill which formed the boundary line between them.

When the Southenders awoke one morning to find a snow-fort on Slatter's Hill and the silk handkerchief of General Jack Harris, the North End leader, floating defiantly from a flag-pole, they knew that the Northenders had challenged them to a battle. Under command of General Mat Ames they at once mobilized and prepared to attack the fort. As they approached the Northenders opened fire upon them, the very first shot taking General Ames in the solar-plexus. Then the battle began in earnest! Cold shot came thick and fast. Those of Harris's warriors who attempted to scale the walls of the fort were either dragged in and made prisoners or hurled back down the hill

At sunset General Ames and his defeated braves marched away whistling "Yankee Doodle"; and to this day, when speaking of a great battle, some warrior will say, "By golly, you oughta seen the snowball fight on Slatter's Hill!"

8.012

SAMPLE 17

### A Snowball Fight on Slatter's Hill

8.0

Slatter's Hill, or No-Man's-Land, stood in the center of town and commanded a view of the whole surrounding country.

With the first big snow Jack Harris organized his bunch of North-Enders and built a big snow-fort on the crest of the famous old battlefield. You can imagine the indignation of Mat Ames and his South-End gang when they discovered the hostile fort.

The whole of that day was taken up with the plans and mobilization of both armies. At two o'clock the next afternoon—the zero hour—Mat and his cronies, fifty strong,



ascended the hill, determined to drive the enemy from their stronghold.

The North-Enders, commanded by General Jack Harris, had not been asleep. They were well organized and had hundreds of snowballs ready. The besiegers' war-cry was answered from the fort. On and on came the South-Enders, each step nearer, each yell louder. At last General Harris fired a snowball which hit General Ames in the stomach. The battle was on! Snowballs flew in every direction. Twice the invaders tried to mount the fort, but were driven off. Then they reorganized for a final attempt to seize the much-coveted place. Forward they came, shoulder to shoulder, into the storm of shot and shell. Again they tried to climb the walls of the powerful fort and again they were repulsed by its invincible defenders. Dismayed, the enemy retreated. The day was ours, and Jack Harris was the hero of the town.

This great battle has been fought over and over again at the drug store, on street corners, any place where boys happen to congregate; and to this day, when some lad starts to talking about a fight, someone pipes up with, "You ought to have seen Jack Harris's fight on Slatter's Hill!"

8.997

SAMPLE 18

### A Snowball Fight on Slatter's Hill.

In my boyhood our town was divided into two rival factions, the Northenders and the Southenders. In those memorable years Jack Harris was leader of our North End gang, while Mat Ames commanded our rivals. Slatter's Hill, our historic battleground towered between.

9.0

One winter morning the town awoke to find over it a three-foot blanket of snow. Jack Harris, quick to appreciate the situation, called us together and proposed to build a snow-fort on Slatter's Hill. We adopted his suggestion, and that evening crept up the heights and set to work upon our defenses.

Fancy their rage next morning when the Southenders awoke to find a massive fortress frowning down upon them, with Jack Harris's handkerchief flaunting defiantly above it! We were behind the walls with three hundred rounds of ammunition.

The Southenders accepted our challenge and prepared to attack us that afternoon. At exactly two o'clock Gen-



eral Harris spied a line of soldiers, fifty strong and led by Mat Ames, creeping up the hill in open formation. We lay by our guns awaiting orders. Just as the enemy came **within range of our fort** and were closing up for action General Harris gave the signal for battle by firing a snow-ball which struck General Ames squarely in the stomach! Humiliated and infuriated with pain, Ames ordered an immediate assault, and the battle was on!

Charge after charge was repulsed by our withering fusillade. The enemy's line crumpled and recoiled, each time more shattered and dismayed. Finally they launched one last desperate assault. Twelve of them succeeded in scaling our walls and engaged with us in a deadly hand-to-hand conflict. Magnificently calm and with heroic abandon, General Harris leaned recklessly over our ramparts and hurled five of the enemy down the hill, while we seized the rest and made them prisoners. With a miserable show of resignation the enemy fled down the hill whistling snatches of "Yankee Doodle" between our derisive cheers. Fort Slatter, majestic in the glow of that winter sunset, was still unconquered, and victory was ours!

When General Harris, wounded but undaunted, turned to us and with beautiful simplicity said, "My soldiers, I'm proud of you!" my loyalty and pride were unbounded.

The battle became history; and in years to come, when heroic tales were told, someone was sure to say, "That's all right; but, by golly, you ought to have been in the Battle of Slatter's Hill!"



# APPENDIX



# APPENDIX

## SECTION I

### AIMS IN COMPOSITION

(Quoted, by permission, from *U. S. Bureau of Education Bul. No. 2, 1917.*)

- I. In general, the immediate aim of high-school English is two-fold:
  - (a) To give the pupils command of the art of communication in speech and in writing.
  - (b) To teach them to read thoughtfully and with appreciation, to form in them a taste for good reading, and to teach them how to find books that are worth while.
- II. Expression in speech includes:
  - (a) Ability to answer clearly, briefly, and exactly a question on which one has the necessary information.
  - (b) Ability to collect and organize material for oral discourse on subjects of common interest.
  - (c) Ability to present with dignity and effectiveness to a class, club, or other group material already organized.
  - (d) Ability to join in an informal discussion, contributing one's share of information or opinion, without wandering from the point and without discourtesy to others.
  - (e) For those who have, or hope to develop, qualities of leadership, ability, after suitable preparation and practice, to address an audience or conduct a public meeting with proper dignity and formality, but without stiffness or embarrassment.
  - (f) Ability to read aloud in such a way as to convey to the hearers the writer's thought and spirit and to interest them in the matter presented.
- III. Expression in writing includes:
  - (a) Ability to write a courteous letter according to the forms in general use and of the degree of formality or informality appropriate to the occasion.
  - (b) Ability to compose on the first draft a clear and readable paragraph, or series of paragraphs, on familiar subject matter, with due observance of unity and order and with some specific detail.



- (c) Ability to analyze and present in outline form the gist of a lecture or piece of literature and to write an expansion of such an outline.
- (d) Ability, with due time for study and preparation, to plan and work out a clear, well-ordered, and interesting report of some length upon one's special interests—literary, scientific, commercial, or what not.
- (e) For those who have literary tastes or ambitions, ability to write a short story, or other bit of imaginative composition, with some vigor and personality of style and in proper form to be submitted for publication, and to arrange suitable stories in form for dramatic presentation.

Note: All expression in writing demands correctness as to formal details, namely, a legible and firm handwriting, correct spelling, correctness in grammar and idiom, and observance of the ordinary rules for capitals and marks of punctuation; the writer should make an effort to gain an enlarged vocabulary, a concise and vigorous style, and firmness and flexibility in constructing sentences and paragraphs.

## SECTION II

PERCENTAGE DISTRIBUTION OF ANSWERS TO QUESTIONNAIRE, FOR  
EACH CLASS OF HIGH SCHOOLS, AND FOR ALL  
HIGH SCHOOLS\*

1. According to what time scheme do you divide  
composition and literature?

Class	I	II	III	IV	All
Comp. 2 days per wk.; Lit. 3 days per wk. ....	..	18	23	40	21
Comp. 5 mos.; Lit. 3 mos. ....	..	..	8	..	3
Comp. three-fifths; Lit. two-fifths. ....	..	18	8	20	12
A classic till finished; then composition. ....	..	..	..	20	3
Comp. 1 wk. per mo.; Lit. 3 wks. per mo. ....	..	..	8	..	3
Alternate by semesters. ....	50	..	23	..	18
Half and half. ....	..	18	31	20	21
3 wks. at a time, alternating. ....	..	9	..	..	3
C. stressed in grades 9 and 10; Lit. in 11 and 12. ....	..	9	8	..	6
Alternate weekly. ....	..	9	..	..	3
So many wks. Comp. per sem.; so many Lit. ....	25	..	..	..	3
Emphasize alternately by semesters. ....	..	9	..	..	3
Taught separately. 1½ years to Comp. ....	..	9	..	..	3
Comp. in grades 9 and 10 only. ....	..	..	8	..	3
Comp. 1 day per week; Lit. 4. ....	25	..	..	..	3

2. Do the same teachers teach both com-  
position and literature?

Yes. ....	100	100	100	100	100
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3. How often do you have compositions  
written?

Daily. ....	..	..	8	..	3
Three per week. ....	..	..	8	20	6
Two per week. ....	25	27	15	..	18
One or two per week. ....	..	..	..	20	3
One per week. ....	..	36	46	..	30
Bi-weekly. ....	..	..	..	40	3
No definite schedule. ....	50	..	8	..	9
Short themes weekly; long ones bi-weekly. ....	..	..	..	20	3
Bi-weekly first yr.; weekly after that. ....	..	9	8	6	9
Short ones weekly; long ones monthly. ....	..	9	..	..	3
A definite no. required in each course. ....	25	..	..	..	3
1 per wk. in 9th yr.; 2 per wk. in 10th. ....	..	..	8	..	3
Also informal class exercises. ....	..	18	..	..	6
Varies according to course. ....	..	9	..	..	3

4. How are your theme subjects chosen?

By teacher. ....	25	27	33	60	36
By teacher and pupils. ....	..	9	..	..	3
By pupils. ....	..	..	..	20	6
"From English" ....	..	9	..	..	3
From current events. ....	..	18	..	..	6
From readings and experience. ....	..	18	17	20	15
Based upon rhetoric. ....	..	9	..	..	3

\*Because answers were frequently expressed in more than one way, the percentages do not always total 100.

	Class	I	II	III	IV	All
Observations; experiences; community interests....	25	45	33	..	30	3
"Practical, if possible".....	..	9	..	..	..	9
From topics in text.....	..	..	17	20	..	3
From contest subjects.....	..	9	..	..	..	3
Topics suitable to school paper.....	..	9	..	..	..	3
Various ways.....	..	9	..	..	..	12
From literature.....	50	9	8	..	..	3
Connected with class subjects.....	..	..	8	..	..	3
According to needs of class.....	25	..	..	..	..	3
5. Were the themes sent me written in or out of class?						
In class.....	33	73	20	..	36	46
Out of class.....	33	27	70	80	..	18
Some in; some out.....	33	..	10	20	..	..
6. Do you mark your pupils' mechanical errors?						
Yes.....	100	91	84	80	88	3
Usually.....	..	..	..	20	..	3
When dealing with mechanics.....	..	..	8	..	..	3
No; pupils mark each other's.....	..	9	..	..	..	3
No.....	..	..	..	20	..	3
7. Do you correct your pupils' mechanical errors?						
No.....	75	50	77	40	63	9
Not if pupils can do it.....	..	10	8	20	..	3
In years 9 and 10; not in years 11 and 12.....	..	10	..	..	..	18
Sometimes.....	..	20	23	20	..	3
Frequently.....	..	..	..	20	..	18
Yes.....	25	30	15	..	..	..
8. What other qualities do you look for?						
General excellencies.....	..	10	8	..	6	24
Thought.....	50	30	16	20	..	60
Rhetorical principles.....	25	60	70	80	15	33
Interest.....	..	20	15	20	..	9
Originality.....	50	30	31	40	..	3
Neatness.....	25	..	..	40	..	3
Understanding of assignment.....	25	..	..	..	..	3
Mechanics.....	..	..	8	..	..	3
Intelligence; grasp; accuracy.....	..	10	..	..	..	3
Adequacy.....	..	..	8	..	..	3
"Style".....	25	10	8	..	10	..
9. How do you handle these other qualities?						
By use of models.....	..	55	46	..	33	12
In conferences.....	..	22	8	25	..	24
By class discussions.....	..	22	23	75	..	18
By written and oral suggestions.....	..	22	30	..	..	6
By giving suitable assignments.....	33	11	..	..	..	3
Revision; caution against recurrence.....	33	..	..	..	..	3
By use of scale.....	..	11	..	..	..	6
By commendation.....	33	..	8	..	..	3
By grading half on mechanics, half on originality..	..	..	8	..	..	3
By use of outlines.....	..	..	..	25	..	..

10. Do you base your theme grades upon general merit, or do you stress one merit at a time?

Class	I	II	III	IV	All
General merit.....	50	27	54	20	40
Usually general merit.....	..	18	23	20	18
Sometimes general merit.....	..	9	..	..	3
One at a time.....	25	27	..	20	15
Review all old; stress one new.....	..	..	15	20	9
"Accumulated standards".....	..	9	..	..	3
When a special point is emphasized we stress it....	..	9	..	..	3
Varies.....	..	18	15	20	15
Depends upon teacher.....	..	9	..	..	3
Depends on theme and class; seniors general.....	25	..	..	..	3

11. What are your pupils expected to do with their returned themes?

Look them over.....	..	9	8	..	6
Rewrite.....	..	9	8	..	6
Note and correct errors.....	75	18	54	80	48
Rewrite if very poor.....	..	9	8	..	6
Correct best ones.....	..	9	..	..	3
Return, to prevent handing down.....	..	9	..	..	3
List and classify all errors.....	..	9	..	20	6
Correct on separate sheet.....	..	9	..	20	6
Copy poor ones.....	..	..	8	..	3
Prepare for school paper and other activities.....	..	..	8	..	3
Prepare best ones for County Fair.....	..	..	8	..	3
Rewrite; return both drafts.....	..	..	..	20	3
Some kept; some discarded.....	..	..	8	..	3
Personal conf. on several themes at a time.....	..	..	8	..	3
Rewrite and return until correct.....	..	9	..	..	3
Note errors and avoid repeating them.....	..	18	15	..	12
Note errors.....	..	..	..	20	3
File in notebooks.....	25	18	46	20	27
File in classroom.....	30	18	..	60	24

12. Do you have themes rewritten?

Yes.....	25	27	25	60	31
Usually.....	..	9	..	..	4
Sometimes.....	50	45	42	..	38
"Pupils sometimes granted privilege".....	..	..	8	..	4
Only careless ones.....	25	..	..	20	6
Seldom.....	..	27	25	20	22
No.....	..	..	8	..	4

13. Which themes, if any, are rewritten?

Those with glaring technical errors.....	..	20	..	..	6
Careless ones.....	33	30	27	75	30
Illegible ones.....	..	30	9	..	12
Very poor ones.....	..	30	18	25	18
Those weak in essentials already stressed.....	..	..	9	..	3
Those stressing a particular point.....	..	..	9	25	6
Those weak on fundamentals.....	..	10	..	..	3
Structurally weak ones.....	..	10	..	..	3
Contest entries and letters.....	..	..	9	..	3
Those wishing to raise their grades.....	..	..	9	..	3

Class	I	II	III	IV	All
When corrections would spoil manuscript.....	..	..	9	..	3
The best themes.....	..	..	9	..	3
All which need it.....	33	..	..	..	3
Failing themes.....	..	..	9	..	3
Those having too many mistakes.....	33	..	..	..	3
Those with more than ten errors.....	..	..	..	25	3
Those with six or more mechanical errors.....	..	..	9	..	3
14. Which themes, if any, are handed in a second time?					
All.....	..	..	..	20	3
All rewritten ones.....	33	60	82	40	65
All corrected ones.....	..	..	9	..	3
Poor ones; often all.....	33	..	..	..	3
Those not O.K.'d first time.....	..	..	..	20	3
Mechanically very bad ones.....	..	10	..	..	3
Careless ones.....	33	..	9	20	15
Good ones needing minor improvements.....	..	..	9	..	3
Those ignoring assignment.....	..	10	..	..	3
Argumentative ones.....	..	..	9	..	3
Those written for school paper or contests.....	..	10	..	..	3
15. What relation, if any, does your oral composition bear to your written composition?					
Identical aims.....	..	..	17	25	9
Same points emphasized.....	..	9	..	..	3
Very close.....	..	9	25	..	12
Same subjects often used in both.....	..	..	17	..	6
Oral exercises often turned into written.....	33	18	42	25	29
Oral arguments based upon written briefs.....	..	..	8	..	3
Much more oral than written.....	..	..	8	..	3
Varied plans.....	..	9	..	..	3
Very little.....	..	45	..	50	21
None.....	33	..	..	..	3
Answer indefinite.....	33	9	..	..	6
16. Do your aims in the teaching of composition differ significantly from those expressed in U. S. Bureau of Ed. Bul. No. 2, 1917?					
No.....	75	90	77	80	82
Yes.....	25	10	23	20	18
17. If so, wherein do they differ?					
Stress mechanics more.....	..	50	..	..	12.5
Stress originality more.....	..	..	..	50	12.5
Stress "decent English".....	..	..	33	..	12.5
Individual conferences required.....	..	..	33	..	12.5
Stress projects more.....	..	..	..	50	12.5
Stress structural accuracy.....	..	50	..	..	12.5
Thought paramount.....	..	..	33	..	12.5
Stress poorer pupils more.....	100	..	..	..	12.5



## SECTION III

## LETTER AND SPECIMEN OF THE A-B-C STUDY

Dear English Teacher:

I am sending you three typewritten compositions. Will you first assume that these three themes were written by ninth-grade pupils, and score them on the percentage basis (0 to 100 percent)? Next, will you please score them on the percentage basis, assuming that they were written by twelfth-grade pupils? Finally, will you kindly score the three themes, regardless of who wrote them, on the basis of the Nassau County Composition Scale, a copy of which I have sent you? Give the three samples the Scale value which they most nearly represent. Do not interpolate values: that is, do not give the three themes any values that do not appear on the Nassau Scale.

## SERIES I

## 1A

## The Most Exciting Ride I Ever Had

It was a beautiful afternoon in September. The air was so crisp and bracing that I thought it an excellent time for a bicycle ride with my chum, so I immediately invited her to accompany me.

We started off cheerfully, but we had hardly reached the bridge when our spirits fell. We heard a familiar sound behind us, and, looking back, we saw just what we expected—my father's bull charging upon us!

The attraction for the bull seemed to be our red ties, so we pulled them off as we rode, and let them fly. But alas, mine caught on the back of my bicycle, and the bull was so near that it was impossible for me to stop to dislodge the tie, so I exerted all of my energy in getting over the bridge.

I had never imagined that a bridge could be as long as that one was; yet it seemed that I scarcely touched it, either, as I struggled frantically over it. Finally in some manner I reached the opposite side, and found a place of safety.

## 2B

## The Most Exciting Ride I Ever Had

Father bought me a spirited black hunter who really danced with pride when I was a little girl who's name is Helen. I am

enthusiastic so I am going to tell you of an experience I had with one. I was delighted! And insisted that I should take it at once but neither Father or Mother were willing at first Mother objected but Father finally said he guessed it would be all right. So I went. After we had raced along for an hour and a cloud of dust loomed up ahead and a thundering sound became audible. A stampede was coming! On one side of me was the stampede; on the other a ravine about ten feet wide. I chose it. The hunter who's instinct had detected danger before me, was trembling with excitement. It seemed that either alternative meant death to both he and I. I urged forward and he galloped to the brink of the gorge and hesitated; but the thunder spurred him on. With a tremendous leap he cleared it and came down shaking with fear. I was too frightened to caress him as I sat and watched them come bellowing on and plunge wildly into it. As I rode home nervous I felt that that will be the most exciting ride I ever experienced.

## 3C

The Most exciting ride I Ever Had. When I was a little girl

I went to visit my Uncle in California, He was the proprietor of a large stockfarm: and consequently owned many fine cattle.

Among them was one old cow "named Old Bet—with whom my little cousins all played. They frequently got on her back without saddle or bridle; and rode safely around the pasture-lot. But do you suppose for a minute that any inducement would persuade me to mount Old Bet." no sir.

One morning after I had listened to about all the teasing and being called "fraid Cat that I could endure I stole out to the stables to ride old Bet. As she was lying down I mounted her without difficulty! Instantly, however she sprang to her feet and only by the most dexterous cowmanship was I able to maintain my seat. I never saw an animal who's back was so hard to stick on. The beast never once stopped after she stopped but curling her tail over her back and her head with a mighty bellow started out at such a made pace I made shure I was done for. She climbed a hill and plunged recklessly down the other side, suddenly she humped her back dropped her head and stopped short Off I went terribly frightened; but uninjured.

I had mounted the wrong cow

## SERIES II

## 2A

## The Most Exciting Ride I Ever Had

I am a little girl and my name is Helen. I am enthusiastic about horses, so I am going to tell you about an experience that I had with one.

Father bought me a spirited black hunter who really danced with pride. I was delighted, and insisted that I should take a ride at once. Mother objected, but Father said it would be all right, so I went.

After we had raced along for an hour a cloud of dust loomed up ahead and a thundering sound became audible. A stampede was coming!

On one side of me was a ravine about ten feet wide; on the other, the stampede. I chose the ravine. The hunter was trembling with excitement. I urged him forward, and he galloped to the brink of the gorge and hesitated; but the thunder of the mad cattle spurred him on. With one tremendous leap he cleared the ravine and came down shaking with fear. I was too frightened even to caress him as I sat and watched the steers come bellowing on and plunge wildly into the chasm.

As I rode nervously home I felt that that was the most exciting ride I had ever experienced.

## 3B

## The Most Exciting Ride I Ever Had.

When I was a little girl and went to visit my uncle in California, who was the proprietor of a large stock farm, and consequently owned many fine cattle. Among them were an old cow, named Old Bet, who my little cousins all played with frequently they had gotten on her back with out saddle nor bridle and rode safely around the stock yard.

But never by any inducement could I be persuaded to mount Old Bet. One morning, after I had listened to about all of the teasing and called Fraid Cat that I could stand, so I stoled out to the stables to ride Old Bet.

As she was laying down, I mounted her with out difficulty. Instantly, however, she leapt to her feet. And only by the most dexterous cowmanship was I able to maintain my seat. The beast never once stopped after she got up. But curling her tail over her back; and lowering her head with a mighty bellow sat out at such a mad pace. I made sure I was done for. She clumb a hill and plunged down the other side.

Suddenly she hump her back, lowered her head; and stopped short off I went, who was terrible frightened, but uninjured. I had mounted the wrong cow!

### 1C

The Most Exciting Ride I ever had

T'was a beautiful afternoon in sept and the air was so crisp and bracing that it an excellent time for a bycycle ride with my "chum, so I imediately invited her to accompany me!

We started out cheerfully: but we had hardly reached the bridge when our spirit's fell. We heard a familiar sound behind us and looking back (what do you think we saw) just what we expected my Fathers bull charging upon us.

The attraction for the Bull seemed to be our red ties so we pulled them off as we rode and let them fly, Alas mine caught on the back of my wheel and the Bull was so near that I couldnt stop to get it lose so I exerted all of my energy in getting accross that bridge

I had never immagined that a bridge could be as long as that one was yet it seemed that I scarcely touched it either; as I struggled frantically over it. Finally in some manner we reached the other side and found a place of safety.

### SERIES III

#### 3A

The Most Exciting Ride I Ever Had.

When I was a little girl I went to visit my uncle in California. He was the proprietor of a large stock farm and consequently owned many fine cattle. Among them was an old cow, named Old Bet, with whom my little cousins all played. They frequently got on her back without saddle or bridle and rode safely around the stock yard. But never by any inducement could I be persuaded to mount Old Bet.

One morning, after I had listened to about all of the teasing and being called "Fraid Cat" that I could endure, I stole out to the stables to ride Old Bet. As she was lying down, I mounted her without difficulty. Instantly, however, she sprang to her feet, and only by the most dexterous cowmanship was I able to maintain my seat. The beast never once stopped after she got up, but curling her tail over her back and lowering her head with a mighty bellow, she set out at such a mad pace I made sure I was done for. She climbed a hill and plunged recklessly down the other side. Suddenly she humped her back, lowered her head,



and stopped short. Off I went, terribly frightened but uninjured.  
I had mounted the wrong cow!

## 1B

## The Most Exciting Ride I Ever Had

The September afternoon was so beautifully crisp and bracing and I felt that it was an excellent time for a bicycle ride with her, so I immediately invited her to accompany Grace and I. It seemed to be our red ties that attracted him. Our spirits fell for we had started out cheerful. But we had hardly reached it when we looked back and saw just what we expected—my father's bull charging us! We let them fly, you see, but mine caught on the back.

I couldn't stop to get it loose. For the bull was so close that I could n't stop to get it loose, so I exerted all my energy in getting across. But at last I did.

It seemed that I scarcely touched it, either, as I struggled frantically to get over. It was so close when we reached the bridge that I could feel his breath on my neck. I had never imagined that a bridge could be as long as that one was! Finally in some manner we reached the other side. And found a place of safety.

## 2C

## The most exciting ride I ever had

I am a little girl and my name is "helen." I am enthusiastic about horses so I am going to tell you about an experience that I had with one.

My Father bought me a spirited black, hunter who really danced with pride. I was delighted: and insisted that i should take a ride at wonce. Mother said you shouldnt go but father said "that it would be alright so I went.

After we had raced along for an our or so a cloud of dust loomed up ahead and a thundering sound became audible; A stampede was comming,

On one side of me was a ravine about ten-feet wide on the other the stampede I chose the ravine. The

Hunter was trembling with excitement. I urdged him forward and he galloped to the brink of the gorge and hesitated—but the thunder of the mad cattle spured him on With one tremendous leap he cleared the ravine and came down shaking with fear! I was to frightened even to carress Him as I sat and watched the steers come bellowing on and plunge wildly into the chasm.

As I rode nervously home I felt that that was the most exciting ride I had ever experienced.



## SECTION IV

## SAMPLE SET OF THIRTEEN VERSIONS USED IN "91" STUDY

## 2

Once a girl and I went to a club meeting that we had got up in a pony-cart that belonged to the girl across the street. Going up the street we could not make him go as fast as if we had been walking we could have made it better time. Just as a large dog came barking out of a man's yard who jumped and ran so hard that it scared us almost to death—even too scared to have sense enough to take it and whip him. We kept at this quite a ways up the street till it got quieted down, then sank back in them with sighs of relief.

## 9

Once a friend and I attended a club meeting which we had called. We went in a pony-cart belonging to a girl across the street. The pony travelled so slowly that if we had been walking we could have made better time. Suddenly a big dog sprang barking out of someone's yard. Our sleepy pony woke up and ran down the street as hard as he could. We were frightened almost to death—too scared, even, to have the presence of mind to seize the whip and hit the dog. Finally the dog gave up the chase, and our pony quieted down. When he did, we settled back in our seats with sighs of relief.

## 14

Once a girl and I went to a club meeting which we had gotten up. We went there in a pony cart which belonged to the girl across the street. Going up the street, we could not make him go fast. If we had been walking we could have made better time. Just at that moment a large dog came barking out of some one's yard. The pony jumped and ran as hard as he could. We were scared almost to death even too scared to have sense to take the whip and hit the dog. We kept at this rate for quite a ways up the street until the pony got quieted down. When he did we sank back in our seats with sighs of relief.

## 21

Once in my happy girlhood days an intimate lady friend accompanied me to a delightful society gathering which we had summoned. We travelled in a gig which was magnanimously furnished

by a maiden across the way. Enroute we were unable to induce the pony to proceed rapidly. Had we elected to walk we should have economized on time. Unawares, a mammoth mongrel advanced barking from someone's yard. Our steed sprang and ran as hard as he could. We were desperately frightened—even too perturbed to have sufficient self-presence to grasp the lash and chastise the dog. We maintained this speed for a considerable distance up the thoroughfare, until our charger eventually regained his composure. Then we reclined amidst our cushions with grateful expressions of relief.

## 33

Once a girl chum and me went to a club meeting that we had gotten up. We had always went on the car before, but this time why we went in a pony-cart that belonged to a girl across the street. Our pony decided that he would take his sweet time, and we simply couldn't make him go no faster. If we had of been walking we could of made better time. Just then a big dog come barking out of someone's yard and sprung at us. The pony jumped and run as hard as he could. We was scared almost to death—even too scared to take and whip the dog. Finally the pony got quieted down, and we sunk back in our seats with sighs of relief.

## 44

Once a girl and I went to a club meeting. We had arranged for the meeting. We went in a pony-cart. It belonged to a girl across the street.

We could not make the pony go fast up the street. We could have made better time if we had been walking. Just then a large dog came barking out of someone's yard. The pony jumped and ran as hard as he could. We were scared almost to death. We were even too scared to have sense enough to take the whip and hit the dog.

We kept at this rate for quite a ways up the street. Finally the pony got quieted down. When he did we sank back in our seats. We breathed sighs of relief.

## 54

Once an intimmate girl friend and I went to a club meeting which we had got up. We went in an anteeque pony-cart which belonged to a girl across the street. Going up the street we could not make the pony travel fast. Positively, if we had been walking we could have made better time. Just when we were believeing that

everything was all right, a large, unusually rabid-looking dog ran out of someone's yard and deliberately sprang at the pony's head. Before we realized what had occurred the pony reared up and ran down the street as hard as he could. We were scared almost to death—even too scared to have presence of mind enough to take the whip and hit the dog.

We kept at this rate for quite a ways down the street until finally the pony got quieted down. When he did, and the dog had disappeared, we sank back in our seats with sighs of relief. Incidentally we steered clear of that dog afterwards.

## 65

Once a girl and I who went to a club meeting which she and I had got up, so we went in a pony-cart which belonged to a girl across the street. As we were going up the street and could not make the lazy pony trot to save our lives. If we had been walking we could have made better time. Just then a large dog that belonged to a man who liked to have vicious dogs around. It came barking out of the yard. The pony, which was rather skittish anyway, and ran away as hard as he could. As we were almost scared to death—even too scared to have sense enough to take the whip and hit the dog. After we had kept at this rate for quite a ways up the street, with everybody running out into their yards to see the excitement. Finally the pony got quieted down. When he did, and we sank back into our seats with sighs of relief.

## 69

Once a Friend & i attended a club Meeting; which we had called! We went in a Ponycart—belonging to a Girl across the st The pony travelled, so slowly: that if we had been walking; we could have "made better" time. Suddenly a big dog sprang barking, out of someones yard and leaped at our ponies head. The lazy beast woke-up and ran down the st as hard as he could. we were frightened almost to death—too, scared (even) to have the presence of mind to seize the whip and hit the dog Finally the Dog gave up it's chase and our pony quieted down, When he did we sank back in our seats' with sighs of relief.

## 73

Once a girl and I went to a club meeting which we had called. We went in a pony-cart that had formally belonged to a girl across the street. The pony went so slowly that we could have maid bet-

ter time walking. But just then a big dog ran out of some once yard barking. The pony woke up with a jump, and ran down the street like a deer. We wear scared almost to death—to scared, even, to have presents of mined to sees the whip and hit the dog. Finely the dog gave up the chase and the pony quieted down. When he did we sank back in hour seats with size of relief.

## 76

Once a girl and I went to a club meeting we had arranged. We went there in a pony-cart that used to belong to a girl across the street, but her father went bankrupt and had to sell everything. Later he disappeared, and no one has heard of him for several months. His family is afraid he has met with foul play.

A dog scared the pony so badly that he ran quite a ways down the street before we could get him stopped and drive back to the club.

We had a pleasant meeting. We had speeches, talks, music, games, and refreshments. There were twenty-two present, a good attendance considering the size of Hilton and the Fair that was going on. Mamma wouldn't let me go to the Fair, so I got up the party instead. We were scared, and when we found that we had got home safely we sank back in our seats with sighs of relief.

## 80

Once a girl and I went to a club meeting in a pony-cart which formerly belonged to a girl across the street, and in going up the street the pony went so slowly that we could have made better time if we had been walking; but just then a big dog came barking out of someone's yard, and the pony jumped and ran as hard as he could, which scared us nearly to death—too scared, even, to have sense enough to take the whip and hit the dog, but after keeping at this rate for quite a ways the pony got quieted down and when he did we sank back in our seats with sighs of relief.

## 87

Once an intimate girl freind and I went to a club meating which we had got up. We went in an antique pony-cart which had belonged to a girl accross the street. Going up the street we could not make the pony go fast. Positively, if we had been walking we could have made better time! Just when we were believing that everything was alright, a large, unusually rabid-looking dog ran out of someone's yard and deliberately sprang at the pony's head.

Before we realized what had occurred the pony rared up and ran down the street as hard as he could. We were scarred almost to death—even to scarred to have presence of mind enough to take the whip and hit the dog. We kept at this rate for quite a ways down the street untill the pony finally got quieted down. When he did, and the dog had disappeared, we sank back in our seats with sighs of releaf.

Incidentally we steared clear of that dog after that!



## SECTION V

## GENERAL DIRECTIONS FOR ADMINISTERING THE THIRTY-TWO COMPOSITION ASSIGNMENTS

1. The immediate aim of this study is to afford each participating teacher a reliable judgment of his pupils' achievement in composition. It is essential that each teacher complete his part of the study accurately and promptly so that the collated results may reach him before school closes this year. The composition scale which has been sent you should already be mastered, so that the themes can be scored more rapidly and reliably. If you are already trained in using it, please review it.

2. In conducting the tests, make every minute count, so that the pupils will have the full fifteen minutes for each theme. Use business-like haste, but do not do it in a way that will fluster your pupils. Give the assignments as rapidly as possible. They should be completed, if possible, within four weeks. The assignments will be in pairs, numbered 1A and 1B, 2A and 2B, etc. Give one pair during one recitation period. For example, give 1A and 1B during one period, 2A and 2B during another period, etc. You are to give the assignments in the following order:

First period . . . . .	Ninth period . . . . .
Second period . . . . .	Tenth period . . . . .
Third period . . . . .	Eleventh period . . . . .
Fourth period . . . . .	Twelfth period . . . . .
Fifth period . . . . .	Thirteenth period . . . . .
Sixth period . . . . .	Fourteenth period . . . . .
Seventh period . . . . .	Fifteenth period . . . . .
Eighth period . . . . .	Sixteenth period . . . . .

3. Follow carefully the directions given for assigning each composition. Even though you may be asked to give the 32 assignments in reverse order, be sure to read them through first in normal order. Then modify the wording of the assignments just enough to satisfy the reverse order.

4. Bind each set of themes together as soon as they are collected. Be sure that each pupil's name is on every page he writes. Failure to observe this may result in endless confusion.

5. Try to score each set of themes promptly so that they will not accumulate on your hands. Enter the scores on the furnished Score Sheets, following the directions printed thereon. Use a separate Score Sheet for each class on each assignment. When you have scored all of your themes, tie each batch separately, wrap

them all up together, and send them to me. Wrap the themes flat. As soon as I receive your themes, I shall send them to some other teacher to grade, and shall send you some other teacher's themes. Each theme will be read by eight teachers. Mail the Score Sheets to me separately; do not put them in with the themes. All postage will be refunded when the scoring is done. Do not make any marks whatever on the themes.

6. Pupils may use either pen or pencil. Themes must be written on only one side of the paper. Have paper of uniform size if possible.

7. It is desirable that you use pupils from several different grades so that our study will be broad as well as thorough. Fifty pupils will be ample from any one school. If you do not have that many available, use as many as you have. Do not allow any pupil to see or learn of any assignment in advance.

### THE THIRTY-TWO COMPOSITION ASSIGNMENTS

#### ASSIGNMENT 1A

When your pupils have been supplied with writing materials, ask them to write at the top of their papers the following information (show them on the blackboard):

Your name

Name of your teacher

Name of your school

Your grade (Low 9; High 10; etc.)

Then say to your pupils: "I want you to write me a story. I am going to give you the title of the story, which you are to write down. You will then be given 15 minutes in which to write the best story you can on that subject. The title is 'The Funniest Thing I Ever Saw.'"

At the end of 15 minutes promptly collect all papers, and proceed with the next assignment.

#### ASSIGNMENT 1B

When your pupils have been supplied with writing materials and have put at the top of their papers the same information that they furnished on their previous themes, say to them: "Now I want you to write another story. You will also be given 15 minutes for it. Write down the title when I give it to you; then proceed to write the best story you can on that subject. The title of this story is 'The Saddest Event of My Life.'"

Close promptly in 15 minutes and collect all papers.

## ASSIGNMENT 2A

When your pupils have been supplied with writing materials and have furnished the proper information at the top of their papers, say to them: "Today I am going to show you twelve pictures.<sup>1</sup> I want you to write a story which one of the pictures suggests to you. Here are the pictures. (Put all twelve pictures up where the pupils can all see them clearly, and leave them there while the pupils write. Be sure that all pupils can see the pictures. If there are any children with defective vision, move them to an advantageous position.) Now write the best story you can that is suggested to you by one of these pictures. You will have 15 minutes. You may give your story a title, or not, just as you wish. You may now begin."

Collect all papers promptly at the end of 15 minutes.

## ASSIGNMENT 2B

Assignment 2B is identical with 2A, except that your pupils are to be asked to write the best story they can about another one of the twelve pictures. In all other respects proceed as in 2A. Collect all papers promptly at the end of 15 minutes, and wrap up the pictures ready for the next teacher.

## ASSIGNMENT 3A

When your pupils are all ready, say to them: "To-day I want you to write me another story. The title of this story will be 'The Most Exciting Ride I Ever Had.' (Always have them write down the title as soon as you have announced it.) You will have 15 minutes in which to write the best story you can on that subject."

Close promptly, collect papers, and proceed to the next assignment.

## ASSIGNMENT 3B

Assignment 3B will be identical with 3A, except that the title of this story will be "The Most Exciting Incident of My Life." In all other respects proceed as in 3A. Close promptly.

## ASSIGNMENT 4A

When everyone is ready, say to your pupils: "I want you to write me another story today. The title of this story will be 'What

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<sup>1</sup>Eighty-eight pictures, chosen from various sources, had been exhibited before 200 high-school pupils. The twelve pictures which were voted to be most suggestive of a story were used in Assignment 2A.

I Should Like to Do Next Saturday.' Put the title on the first line, then write the best story you can on that subject. You will have 15 minutes."

Close promptly, collect papers, and proceed with next assignment.

#### ASSIGNMENT 4B

Assignment 4B will be identical with 4A, except that the title of this story will be "How I Should Like to Spend Next Fourth of July." In all other respects proceed as in 4A. Close promptly.

#### ASSIGNMENT 5A

When everything is ready, say to your pupils: "To-day I want you to write about some interesting book that you have read. Write the title of the book on your papers, then write the best composition you can about that book. You will have 15 minutes."

#### ASSIGNMENT 5B

Say to your pupils: "Now I want you to relate an interesting story that you have heard. You may give it a title, or not, just as you wish. You will have 15 minutes in which to relate as well as you can this interesting story that you have heard. You may now begin."

#### ASSIGNMENT 6A

Say to your pupils: "I overheard a few words of conversation the other day. I don't know what the conversation was about, but the few words I heard aroused my curiosity. I am going to tell you what those few words were, and let you write a story about them. When I tell you the words you are to write them down as your title; then you will be given 15 minutes in which to write the best story which the words suggest to you. The words I overheard were: 'Did it happen right in church?'"

#### ASSIGNMENT 6B

Assignment 6B will be identical with 6A, except that the overheard remark will be: "Don't tell Mother, for it would kill her!" In all other respects proceed as in 6A. Close promptly in 15 minutes.

#### ASSIGNMENT 7A

Say to your pupils: "To-day I am going to read you a story. Please listen carefully while I read it. The title of the story is: 'An Adventure.'" Then read the following story carefully:



## An Adventure

When the prisoner saw that his guards were sound asleep he used his teeth to unfasten the rope which bound his hands, and in an instant he was free. He quickly seized the small bag of food, mounted one of the horses, and spurred away. He rode so hard that finally the poor animal, utterly exhausted, fell dead, leaving the man alone in the midst of the desert.

After walking for a long time in the sand, the man was obliged to stop, as the day had already come to an end. He was so tired that he threw himself down beside a big rock, crawled into a kind of small cave, and, with no means of defence, was soon fast asleep.

In the middle of the night he was disturbed by an extraordinary sound. He sat up. In the deep silence he could hear a breathing so savage that he knew it was not that of a human being. A terrible terror froze his heart within him. He felt his hair rise on end, as his eyes, spread wide, saw through the gloom two faint lights. The vivid brilliance of the night aided him gradually to distinguish the objects around him in the cave, when he saw, within two feet of him, a huge animal lying at rest. Presently the moon, as it went down, lighted up the den, revealing the gleaming, resplendent, and spotted skin of a panther.<sup>2</sup>

When you have finished reading this story to your pupils, say to them: "Now I want you to finish the story. You will be allowed 15 minutes. Write the title first—An Adventure—then tell how you think the story would end."

## ASSIGNMENT 7B

Assignment 7B is identical with 7A, except that they are to finish the following story, which you will read to them:

## The Old Man's Story

I got on the train one day to go to another city. I sat down beside an old, gray-haired man, and we began to talk. I noticed that he had only one leg. During our conversation I became so curious that I finally said: "I don't want to seem inquisitive, sir, but I'd like to know how you came to lose your leg."

The old man looked down as he answered: "That was a long time ago, and the story probably wouldn't interest you now."

"Oh, yes it would," I replied eagerly.

"I'd rather not tire you with the tale," the stranger said, still looking down.

"Please do, sir," I pleaded.

"I'm almost ashamed to tell you how it happened," he replied; and I wasn't sure whether the old man was laughing or crying.

"Please tell me," I begged.

"It was bit off," he said, as he turned toward the window.

"Tell me all about it," I urged, now tingling with curiosity.

"Well, it was this way," the old man began.

(Finish the story in fifteen minutes.)

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<sup>2</sup>Adapted from Dumas' *A Passion in the Desert*.



## ASSIGNMENT 8A

Say to your pupils: "I am going to read you another story to-day. Please listen carefully while I read it, for when I have finished I want you to write it in your own words. I have already written on the blackboard the title of this story and the proper names that occur in it (see italicized words)." Then read clearly the following story:

## Adrift at Sea

We had rowed out to *Sandpeep Island* in our new boat, the *Dolphin*, and had just put up our tent for the night. While the rest of us were building a fire to cook our supper, *Binny Wallace* went down to the boat to get some things we had left. He had been gone five or six minutes, when we heard him calling to us in tones of distress. Our first thought was, "The boat has broken adrift." We ran down to the beach, and, sure enough, the *Dolphin* was afloat, and poor little *Binny Wallace* was standing in the bow with his arms stretched helplessly toward us—drifting out to sea!

"Head the boat in shore," shouted *Phil Adams*. *Binny* ran to the rudder; but the light shell merely swung round and drifted broadside on. Oh, if we had only left a single oar in the *Dolphin*!

"Can you swim it?" cried *Phil* desperately, for the boat was drifting away fast. *Binny* looked down at the sea, which was covered with whitecaps, and made a despairing gesture. He knew, and we knew, that the stoutest swimmer could not live forty minutes in those angry waters.

The sky darkened and an ugly look stole rapidly over the broken surface of the sea. *Binny Wallace* half rose from his seat in the stern, and waved good-bye to us. The sky grew darker and darker. It was only by straining our eyes that we could keep the *Dolphin* in sight. The figure of *Binny Wallace* was no longer visible, for the boat itself had dwindled to a mere white dot on the black water. Now we lost it, and our hearts stopped throbbing; and now the speck appeared again on the crest of a high wave.

Finally it went out like a spark, and we saw it no more.\*

When you have finished reading the story, say to your pupils: "Now I want you to write in your own words the story I have just read. You will be allowed 15 minutes. You may now begin."

## ASSIGNMENT 8B

Assignment 8B is identical with 8A, except that the following story is to be read to your pupils and they are to be asked to reproduce it. In all other respects proceed as in 8A.

## A Snowball Fight on Slatter's Hill

*Slatter's Hill*, or No Man's Land, as it was generally called, was a rise of ground covering perhaps an acre and a quarter, situated on an imaginary line marking the boundary between the *North End* and the *South End* of town. One evening twenty or thirty of the North Enders quietly took possession of *Slatter's Hill*, and threw up a strong line of breastworks. Fancy the rage of the South Enders next day, when they spied our snowy fort, with *Jack Harris's* silk handkerchief floating defiantly from the flagstaff! In less

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\*Adapted from Thomas B. Aldrich's *Story of a Bad Boy*.

than half an hour it was known all over town, in military circles at least, that the South Enders intended to attack the fort that Saturday afternoon.

At two o'clock all the fighting boys of the North End, and as many recruits as we could muster, lay behind the walls of Fort Slatter, with three hundred snowballs piled up, awaiting the approach of the enemy. The enemy was not slow in making his approach—fifty strong, and headed by *Mat Ames*. Our forces were under the command of General J. Harris.

The thrilling moment had now arrived. The fort opened fire first—a single ball from the hand of General Harris taking General Ames in the very pit of his stomach. A cheer went up from Fort Slatter. In an instant the air was thick with flying snowballs, in the midst of which we dimly saw the storming parties sweeping up the hill, shoulder to shoulder.

Not more than a dozen of the enemy succeeded in reaching the crest of the hill; five of these clambered upon the icy walls, where they were instantly grabbed by the legs, jerked into the fort, and made prisoners. Twice we were within an ace of being driven from our stronghold, when General Harris and his staff leaned recklessly upon the ramparts and hurled the besiegers heels over head down the hill. The rest retired confused and blinded by our well-directed fire.

At sunset the garrison of Fort Slatter was still unconquered, and the South Enders marched away whistling "*Yankee Doodle*," while we cheered and jeered them till they were out of hearing. When General Harris, with his right eye bunged up, said, "*Soldiers, I'm proud of you!*" my heart swelled in my bosom.

The battle passed into a legend; and afterwards, when later instances of pluck and endurance were spoken of, the boys would say, "*By golly, you ought to have been at the fight on Slatter's Hill!*"

#### ASSIGNMENT 9A

Say to your pupils: "I am going to write several words on the blackboard, and I want you to use several or all of them in a story. You may use them in any order you wish, and as many times as you wish. You will be allowed 15 minutes in which to write the best story suggested to you by these words." Then write the following on the blackboard:

road	evening	horse	picnic	old house	automobile
ghost	fence	Mary	sleep	mysterious	moaning
storm	trees	morning			

#### ASSIGNMENT 9B

Assignment 9B will be identical with 9A, except that the following words are to be written on the blackboard, and your pupils are to use several or all of them in a story. Allow them exactly 15 minutes.

blushed	after school	lie	blackboard
algebra	angry	book	teacher
problem	movies	sorry	Helen
			copy

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\*Adapted from Thomas B. Aldrich's *Story of a Bad Boy*.

## ASSIGNMENT 10A

Say to your pupils: "I want you to write me another composition to-day. When I give you the title, you are to write it on your papers. Then you will have fifteen minutes in which to write the best composition you can on that subject." Then give them the title, "My First Lie."

## ASSIGNMENT 10B

Assignment 10B will be identical with 10A, except that the title of this composition will be, "How I Learned a Lesson." In all other respects proceed as in 10A.

## ASSIGNMENT 11A

Say to your pupils: "I shall give you another title to-day, which you are to put on your papers; then I want you to write a story about that title. You will have 15 minutes for your story." Then give them the title, "A Trip to Heaven."

## ASSIGNMENT 11B

Assignment 11B will be identical with 11A, except that the title will be, "A Conversation with Mars." In all other respects proceed as in 11A.

## ASSIGNMENT 12A

Say to your pupils: "I want you to write me another composition to-day. This time I shall not give you a title. You may write about anything you wish, so long as you have not written about it before. You will be allowed 15 minutes in which to write the best composition you can. You may now begin."

## ASSIGNMENT 12B

Assignment 12B will be identical with 12A. Simply ask your pupils to write another composition upon any subject they wish, so long as they have not written upon it before. Allow exactly 15 minutes.

## ASSIGNMENT 13A

Say to your pupils: "During the next few days we are going to write some compositions about camping. If it happens that you have never been camping, just imagine that you have. The title of each of your compositions on camping will be 'My Camping

Trip.' Write that title on your papers. Now I want you to write the best story you can about the most exciting part of your camping trip. You will have 15 minutes in which to write the best story you can. You may now begin."

#### ASSIGNMENT 13B

Say to your pupils: "During the next few days we are also going to write some compositions about your school days. The title of each of these compositions about school will be 'School.' Write that title on your papers now. Then write the best story you can about your first day in school. You will have 15 minutes. You may now begin."

#### ASSIGNMENT 14A

Say to your pupils: "To-day we are going to write another composition on 'My Camping Trip.' Write the title on your papers now. Then write the best description you can of something interesting which you saw on your camping trip. You will have 15 minutes in which to write your description. You may now begin."

#### ASSIGNMENT 14B

Say to your pupils: "Now we shall write another composition on 'School.' Write the title on your papers. Now I want you to write the best description you can of one of your teachers, past or present. You will have 15 minutes. You may now begin."

#### ASSIGNMENT 15A

Say to your pupils: "We shall write another composition to-day on 'My Camping Trip.' Write the title on your papers. Now I want you to explain as clearly as you can why you took your camping trip and why you went where you did. You will have 15 minutes. You may now begin."

#### ASSIGNMENT 15B

Say to your pupils: "Now we shall write another composition on 'School.' Write the title on your papers. Now I want you to explain as clearly as you can the value of an education. You will have 15 minutes in which to explain the value of an education. You may now begin."

#### ASSIGNMENT 16A

Say to your pupils: "To-day we shall write our last composition on 'My Camping Trip.' Put the title on your papers. Now I

want you to write a composition proving that it is good for people to take camping trips. Suppose that there are people who do not believe in going camping. Convince them that a camping trip would do them good. You will have 15 minutes in which to do this. You may now begin."

#### ASSIGNMENT 16B

(If you have been asked to have your pupils write upon these thirty-two assignments in reverse order, read Assignment 1A carefully to see what your pupils are to do before they begin to write on any of the assignments.) When everything is ready, say to your pupils: "We shall now write our last composition on 'School.' Write the title on your papers. Now I want you to write a composition proving that examinations should be given in school, or that they should not be given. You may take either side and defend it. You will be allowed 15 minutes in which to do this. You may now begin."

Close promptly in 15 minutes, and collect all papers.



## SECTION VI

## PRACTICE LISTS

1. SERIES A, B, AND C FOR MAXIMAL COMPOSITION ABILITY SCALE  
SERIES A

## A1

How I learned a lesson.

When I was a dignified Sophomore I used to laugh at the Freshies for falling up or down stairs; but when I fell up the steps one day I felt like thirty cents. Now when anyone takes a tumble I go outside to do my laughing, for I can feel for him.

## A2

Howw I leannnd a Lesson

One time I pushing a wheelborrow up a hell when I was lettles and I fell down. My fet got on some less rock and my tung was hanging out and I het my chin on the wheelbrrow and cut it nerrly off.

## A3

How I Learned a Lesson.

I shall never forget the day I walked into the parlor to meet the girls who were to be my associates that first year at boarding-school. All the other girls impressed me favorably, but I hated Harriett the moment I saw her. "How shall I ever endure her for a whole year?" was the one thought that occupied my mind as we sat at luncheon together. Her familiarity and garrulity jarred upon my sense of propriety. It was with an audible sigh of relief that I watched her vanish through the door on her way to afternoon classes.

During the next few months I met Harriett three times every day, and she always monopolized the conversation. After telling us everything about herself that we did not care to know she wrung from us all that we could tell of our homes and the histories of our families further back than we could remember. The subject of geneology exhausted, Harriett became the Autocrat who entertained, instructed, and advised. She told amusing stories, commented upon social activities, and offered suggestions so tactfully that one could hardly suspect a motive. She was at the same time talkative and discreet, voluble and tranquil. Trouble came to her, but never gloom.

Without realizing it I had come, before the year was over, to care more for Harriett than for all the other girls together. She was talkative, but she was not insipid; she was volatile, but she was steadfast; she was familiar, but she was sincere. I Learned to depend upon her when the way was obscure. She taught me that cheerfulness and guilelessness are the only way, and that I must not pass judgment upon those whom I have met for the first time.

#### A4

##### How I Learned a Lesson

One day my teacher told me that three cigarettes would kill a cat I had a old eat and I soaked the poison out of the cigarettes and I had a needle I put the poison in its blood and kept her up till she died she died in twenty-four hours after I put it in her I learned that cigarettes were poison I had been trying to smoke them but I quit it.

#### A5

##### How I Learned a lesson

Last year I set some dry grass a fire. It burnt a lot of treas and fences. I got in trouble and I do not do it any more.

#### A6

##### How I learned a Lesson

Many authors have written on Nature and the lessons that can be learned from her. Some people go to the desert to learn of Nature, some go to the ocean, but mine came from the forest. There will probably be no eall for me to tell how I learned my lesson after I tell you what the lesson was. According to the best of my belief it is self explanatory. Some people learn a lesson and then forget it, some only learn halfway. Either course is a bad one. My lesson was complete in one installment. There were no charges except a new suit of clothes and isolation, from the rest of the family for about a week. This was my lesson: When you see a little black-and-white eat in the woods don't walk up saying "Kitty Kitty" and attempt to pet it. The better way is to run the other way and say nothing. Don't even say s'eat, cause tishn't!

#### A7

##### How I learned a lesson.

I learned a very good lesson once my mother had often told me to keep away from the river. One day she told me not to go heary the

river as it had just rained and the water had raised a little. But I decided to run down to the river and throw rocks in. I had been playing but a little while when my foot slipped and I fell in. My brother saw me fall and I was coming up the second time when he pulled me out. I learnt a great lesson by not obeying my mother.

## A8

## I leaved a Lesson

one day I swas drioe a car and I hit a motor car and I an careful,

## A9

## How I Learned a Lesson.

One das I ran of from home one das. My mother had told me to stay at home and I ran off me and som other boys and went out in the woods we was in the woods about a nar or more and a fg rain som up and we was abaut a mild or more away from home amd we got sokened weet. And when I got home I got a good leeond and I did not go far away from home andy when mother said I could.

## A10

## How I Learned a Lesson

One day last Summer a girl friend of mine and I were out gathering flowers. The flowers happened to be roses, so bees were around them. She started to pluck a rose when a bee stung her on the hand, and she cried. It seared me at first, then I began to laugh at her. She didn't seen to like it because I laughed, for she said, "Alright, you'll be the next one to get stung." "No, no," I said, "I'm going to be careful." The words were hardly out of my mouth when I, too, was stung on the hand! Then she laughed at me.

## SERIES B

## B1

## How I Learned a Lesson.

I had always been fairly good about obeying my parents, but this time I felt that Mother had exacted an unreasonable promise from me.

Pearl and I sat looking longingly into the forbidden water. The canoes along the bank were so entieing!

"Pearl, can you row?" I asked.

"Yes, a little," she answered.

"I'm game to go with you," I said. "Let's get a canoe."

Soon we were reveling in the delights of rowing. For awhile it was glorious; but when we were well out from shore we discovered that our canoe was leaking! There was already so much water in the bottom that I had to lift my feet to keep them dry. Pearl's were already wet.

"Pearl, do turn back!" I exclaimed. "You know neither of us can swim."

"Well, that's what I'm trying to do," she replied with a pale face, "but this old canoe seems so contrary."

I knew better than to excite Pearl, else I might have cried. I certainly felt like it.

Oh joy! We finally began to approach the shore! Would we ever reach it? The water was up to our ankles. The river was as wide as the ocean.

With dripping skirts I leaped to the bank. With an hysterical laugh I resolved never again to disobey my mother.

## B2

### How I Learned a Lesson,

One day I wanted to go to town. Father objected, but I decided to slip off and go anyway.

I had got about half way to town when Father, who had discovered my absence, overtook me. I went back faster than I had come, I tell you! When we reached home he cut a limb and gave me such a whipping that I resolved then and there never to run away again.

## B3

### How I Learned a Lesson

One day I was told to wash the dishes and I wouldn't do it. I was then told I couldn't go to my aunts for three days and during that time they had a party and of course I couldn't be there. I learned right then to do as I was told.

## B4

### How I Learned a Lesson

When I was twelve years old I became the proud possessor of an air-rifle. I swore vengeance on every bird of the English Sparrow tribe but promised myself I would not bother any others.

I was shooting birds one day and Harry Rhodes and Frank Land were accompanying me with their rifles. We killed a few

bird that morning, all English Sparrows, but a red-bird flew to a tree just a little ways ahead of us. Harry and Frank each took a shot and missed, so I took aim, fired, and missed; but just then Frank shot and brought it to the ground.

I started over the fence to get it, and the first thing that I knew about two million yellow-jackets lit on me and began to dig. I tumbled back over the fence and fell. It took me about two minutes to finally regain my feet, and I started for home. As I ran I let out a scream every step of the way.

The yellow-jackets finally left me, and I rushed to the house where my mother and sister put soda and liniment on my stings. After this was done the pain abated, although it was still very fierce.

I could not eat my dinner, and all at once the thought struck me, tonight is the night of Henrietta's party, and I will be unable to go!

Supper time came and I ate, and my swellings subsided so that I went to the party and had a good time.

My father took the rifle and broke it to pieces, and I still think that that was a lesson taught to me in the right way, for I have never harmed a bird, except the English Sparrow, to this day.

## B5

How I Learned a Lesson.

One day I was going home from school and I got on a truck and when ti got to the place for me to get off j went to jump off a truck and fell down and the pinal wheels just missed my leggs and that was the last time that I got on a truck after that.

## B6

How I Learned a Lesson.

Our big Collie dog was out in the yard chewing at a bone. I wanted to romp with him but he pretended not to see me, for he wanted to chew his bone. When I saw this I tried to take it from him. and he bit my hand, making it bleed. I at once ran into the house to have it cared for. It was not a very bad bite, but it did teach me a good lesson, and that was to attend to my own business.

## B7

How I Learned a Lesson

one day I was in a swing and I bout drouned I get out in the water to fire and I stird back and I just get half way I bout went under but I mad it



## B8

## How I Learned a Lesson

I have handled a gun every sense I have been six years of age I have been very careful with a gun when I handled them I never did fire one of by accident until last spring. I went to the field to clean of the storks and rubbish I took a twenty two rifle a long and after I had finished the job I went around the hill to watch a wood-chuck hole. I set the gun on my foot and by accident pulled the trigger and put a bullet through My foot. and after that I have learned to keep a gun away from my foot.

## B9

## How I learned a Lesson

once I was smoking and I got sick the boys that were with me made fun of me. then I ask for one more it was when I went fishing and it made so sick that I never had any more. people want to give them to me but I say I don't smoke.

## B10

## How I Learned a Lesson

I fall out of a tree and broke my Arm and I never climb after that.

## SERIES C

## C1

## How I Learned a Lesson.

When I was about ten years of age and hardly knew right from wrong a neighbor woman sent me to the store one day to get her some groceries. With the change I bought some candy, but I didn't tell her that I had bought anything more than she had sent me after.

When I went home Mother asked me what I had in my pocket. I was afraid to tell her nothing, so I told her the truth. She then went and told the lady, and also whipped me. I never did a trick like that any more, for I learned that I had deceived my friend.

## C2

## How I Learned a Lesson

O roald seach on day and sead hil ne ar lones to me.

## C3

## How I learned a Lesson

One day a chum came over to my house and, calling me to one side, told me that he had two nice cigars which he had "snitched" from his father's pocket. We headed at once for Grandfather's barn where, as Herbert, my friend, said, we could smoke in peace.

Upon arriving at the barn Herbert pulled out two long black Invincible cigars. We lighted up as Herbert grunted between puffs,

"Ever smoke before?"

"Sure," I lied, "lots of times."

"So have I," answered Herbert.

After taking a few long puffs on my cigar I began to see the world upsidedown, and I think Herbert did too. In a few minutes we were both lying on the grass, a very distressed pair of boys.

After the climax had come and gone Herbert, still white and trembling, said, "No kidding, now; had you ever smoked before?"

"No," I nodded sheepishly, "had you?"

"No," Herbert sighed.

"This has certainly been a lesson to me," I said as we departed.

"Here, too," answered Herbert.

## C4

## How I Learned a Lesson.

I was told when a child never to talk about any one. But I happened to be with a group of girls that were making fun of some friend. I liked this friend well and I knew at the time I was talking about her that I was doing wrong. But hearing these other girls talking I thought that I should do the same. One girl said that this certain girl was nothing but a rough neck. It really made my heart thump when she said this because I knew it wasn't true. I then made my remark about her, saying that she was as homely as sin. I knew she was good looking, but I said it any how. These remarks all came back to my friend and she came to me one day and asked what I had said about her. Well I wouldn't tell her but she said she knew. Just then a girl came up and asked if we were sisters. I immediately said know and she said that we looked so much alike. Now this wasn't the first time that we had heard this so we both answered to gether, "Well if that's the case we are both homely." And I truly believe this is so.

## C5

## How I Learned a Lesson.

I remember, it **was** a long time ago of course, that mother told me not to do nothing, but I did it, anyway.

She told me to stay at home, while she was gone. Some girls come along and wanted me to go for a car ride so I ment. While we were riding along, it began to rain and we did not get home until after dark. We come near sliding into the river. We were so frightened that I learned a lesson.

## C6

## How I Learned a Lesson.

Mother used to say that I never saw anything new without wanting to see how it was made and how it worked. She predicted that some day I would find out to my sorrow how something worked; but I considered that only one of Mother's whims.

One evening after school last spring I walked through town to get Mother some talcum-powder at Henderson's Drug Store. While waiting for my purchase I spied a mysterious-looking box on the cigar counter with the name INVINCIBLE across the front. I had only the day before learned the meaning of that word through Latin, and I considered the strange box a challenge. Upon examining it I found an inviting little hole in the top. I poked my finger into the hole, and, "Snap!" went the maching. The end of my finger lay among cigar-clippings and my blood was shed all over the counter before the clerk got my finger dressed.

I concluded that CONVINCIBLE would be a better motto for that infernal machine, and that at least one of Mother's whims is sound.

## C7

## How I learned a Lesson

It was time to practice, and my; how I hate to! But I love to play. The parlor window was up and I could hear Mother talking to some one. I called out asked her if I might practice that night. She said no and when I heard her say it I was lost.

I was mad then so I just made as much noise as possible and never corrected a wrong note or anything. I put in an awful hour.

When I got through mother said, "Come here someone has come to see you. I went to her and who should it be but my uncle who gave that Piano for my Birthday, and he had to go thru. that

madding hour the same as I did. I hung my head in shame. Because what I ment to inflict on the piano was inflicted on him too. To think that my uncle should have seen me give a display of temper was maddning. and now when I am mad I go away all by myself, and fight it out.

## C8

## How I Learned a Lesson.

Last summer Father, Mother, and I wnet to Eurpoe to visit my brother's grave. While abroad we crossed the Alps to see Italy. We had several pieces of baggage, and Italian trains are laborious anyway, so Father always tried to find a vacant compartment on the trains where we might have plenty of room. We all came to resent the presence of any intruders in our "private" compartment.

One day, in traveling from Milan to Verona, we succeeded in finding a vacant compartment. We had arranged our baggage conveniently and had just settled ourselves comfortably when the train pulled up at a village. A big, dark-skinned woman opened our door and pushed in past our baggage and our stares, deposited her hand-bag, and sat down. Father saw a chance to say what he thought without being understood, so he opened up. Mother concurred, and I caught the spirit of the occasion and gave vent to my fresh young spleen. The woman sat stolidly, apparently ablivious to our anathemas. We were reveling in our opportunity to indulge in freedom of speech.

When we had exhausted our vocabularies and suitably disposed of all such souls as hers, we proceeded to accomodate ourselves to our restricted quarters. Our guest, apparently relieved by the calm after the storm, opened her bag, took out a copy of "Main Street," and began to read!

## C9

## How I Learned a Lesson

I was arrested for fighting ine the street and tock up in furnt of the mear and he sad he would leat us go if we woud leat us go if we woud never figt on the street. that How I Learned Lesson.

## C10

## How I Learned a Lesson.

When I first began raising little chickens I did not know very much about them, But I wanted to learn. When the little chickens

began to hatch I surely was glad to see them. They were all colors—some were yellow, some black, and some were colored like a ground-squirrel. These I knew would be leghorns, the plumoth rocks are black-and-white when hatched, and the little yellow ones I knew would grow to be big red chickens.

I was delighted when all of the eggs hatched, but what I wanted most of all was to feed my chickens and watch them grow. It is fun to listen to them chirping while they eat, and I liked to hear them so well that I always fed them too much. Mamma warned me that I was feeding them so much they would just get fat, and not grow very fast; but I thought that surely the more I fed them the faster they would grow. Mamma kept telling me, till I decided to try giving them only half as much, and I found that they grew much faster; So this was the lesson that I learned, and I have not had any trouble getting them to grow since that lesson.



## 2. SERIES D, E, AND F FOR TYPICAL COMPOSITION ABILITY SCALE

## SERIES D

## D1

## A Snowball Fight on Slatter's Hill

Slatter's Hill, or No-Man's-Land as it was called, was a point of land lying between the North End and South End of town, covering about an acre and a fourth.

One Saturday morning the North End, under the leadership of Jack Harris, got together a small army of young men and made a snow fortress on Slatter's Hill. The South Enders soon found it out, and prepared for an attack that afternoon at two o'clock under the leadership of Mat Ames. They gathered together fifty men and started up the hill. Mat Ames was met by a snowball in the pit of his stomach from the hand of Jack Harris. But they swept on up the hill. Nothing could be seen except flying snowballs. About a dozen boys reached the top of the hill. The others were driven back by the snowballs. Some of the boys tried to climb over the icy fortress, but were grabbed by the legs and made prisoners. What was left of the South Enders retreated amidst the cheers of the North Enders.

The battle became a legend in the town. If anything concerning military genius was mentioned one of the boys who fought would say, "By golly, you ought to have been at the fight on Slatter's Hill!"

## D2

## A Snow Ball Fight an Slatter Hill

Slathers Hill was a small hill in the center of the toun, that also nas the imaginary boundary time that divided the Northern And Southen parts of the toun.

One night the northenes boy crept silently up en the hill and bult a line of breast works, and made some three hundred snow balls. the next morning nny person in the southern part of toun, the military parts especealy General Jack Harris who and all the fellow whom he could muster in his mighty army marched against the Fort. Mac Ames who was General on the north end sind, had mustered some fifty to help hold the fort.

General Harris the first thing hit General Mac Ames in the stomach with a snow ball. the air was full of snow balls but the South ender got close to the fourt.

## D3

## A Snowball Fight on Slatter's Hill.

Slatter's Hill, more commonly known as No-Man's-Land, rises midway between the North End and South End of town. Its precipitous slopes and flat summit render it an almost impregnable vantage point in the frequent snowball battles between the Northenders and Southenders.

One Saturday morning the Northenders intrenched themselves on the height behind a massive fort of snow. In a few hours the word went round that the Southenders would attempt to dislodge them that afternoon. The garrison reinforced its defenses and piled snowballs high in preparation for the attack.

At two o'clock the enemy appeared, fifty strong, under the command of General Mat Ames. The garrison, in charge of General Jack Harris, waited to see the whites of the enemy's eyes. Each defender gripped a projectile in either hand, and a supply lay at his feet.

Just as the besiegers crept within range General Harris gave the signal for battle by firing a snowball which took General Ames in the pit of his stomach. The enemy faltered a moment, then renewed the charge; but volley after volley met them, and they finally wavered and withdrew. In a last desperate assault a dozen of the Southenders attempted to scale the walls, but General Harris leaned recklessly over the ramparts and repulsed the charge. Five of the enemy were seized by the legs, drawn over the walls, and made prisoners, while the rest were hurled down the hill. Finally the thin blue line abandoned the attack and marched away whistling "Yankee Doodle" amid cheers and jeers from the fort.

General Harris, with a blue swelling under one eye, turned to his comrades and said, glowing with pride, "My men, you acquitted yourselves nobly; I'm proud of you!"

## D4

## A Snowball Fight on Slatter's Hill.

On no man's Hill as it was some times called on about one and one fourth acres of ground. The South enders and North Enders had a snowball fight.

There were twenty to thirty northenders and fifty Southenders which were to battle for the fort Jack Harris's handkerchief (silk) was their flag on the Southenders side. They had 300 snowballs waiting for the enemy. Not more than ten of the northenders succeeded in getting any ways near the Southenders. General Jack

Harris started or fired the first shot he threw a snowball and hit General Mat Ames in the stomach.

As the Northenders were climbing to the fort the S. E. got them by the legs and pulled them down the hill and made them prisoners.

The General of the Southenders said he was proud of his troops and they marched away singing Yankee Doodle.

## D5

a snowball fight on Slathers Hill

the south enders perlt a fort on the hill and the north enders raded the fort and sone of then got cort and made turn trator

## D6

### "A Snowball Fight on Slatter's Hill"

There was at least thirty boys from the North End of town, took possession of Slatters Hill which was a division of the North End and the South End, covering about one and one half acres.

Here they immediately built a fort of the fleesy snow directed by General Jack Harris as he was named.

It was not long until the South End boys found what had happened. They then made preparations and had made their attack by two o'clock that Saturday afternoon.

The South Enders with Mat Ames directing them did not give up when General Jack Harris hit him in the pit of the stomach with one of the three-hundred snow balls that Jack's company had prepared.

Five of Mat's warriors succeeded in getting to the Fort where they were taken prisoners until almost dark. Then was allowed to go home singing Yankee Doodle while Jack's company cheered them.

## D7

### A Snowball Fight on Slatter Hill.

Once on Slatter hill as grate was fowght. be twin the marth and the sauth. north had some some snow balls here and there so thick that you could git throw with out getting hit with a ball the north were be hind the snow ball waiting for their enemie aprach. Them they didnt have long to the sath were there the an the South got hit in badry and five reach the ap but were captured

## D8

## A Snowball fight on Slatters

Now man land 4 ake of land South End had a fight whit the North end Southe end had three hundred Snow boll and one day the Southe End mad a read on the Northe End and the snow boll was flying in air Southe end capteard sone of Northe End me ant capeten Jack Harris.

## D9

## A Snowball Fight on Slatter's Hill.

Slatter's Hill, or No-Man's-Land, is an imaginary boundary line between the North End and the South End of town.

One Friday evening in mid-winter the Northenders quietly took possession of the strategic position and threw up a strong line of breastworks around the top. In an hour the news had gone from one end of town to the other that the Southenders would attack the fort the next day.

At exactly two o'clock on Saturday afternoon the Southenders, led by General Mat Ames, advanced on the fort. We were inside with three-hundred snowballs, and were commanded by General Jack Harris, whose handkerchief floated defiantly above our post.

The Southenders advanced on the run. We held our fire until General Harris gave the signal by firing a snowball straight into the pit of General Ames's stomach. Blinded and dazed by our first volley, the enemy wavered. Great gaps appeared in their line as they formed for a second assault. This time a dozen succeeded in scaling our walls, but five of them were dragged in by the legs and made prisoners, while our brave General leaned recklessly over the ramparts and hurled the others heels over head down the hill.

When the Southenders had retired in confusion and defeat General Jack turned to us and said, "Well done, my brave lads!" Our bosoms swelled with pride; and now, when there is talk of other battles and other heroes, we always say, "By golly, you ought to have been at the fight on Slatter's Hill!"

## D10

## A Snowball Fight on Slatter Hill.

Once there was a man had about acre and half of land and he lived in a snow house

There was an army came on his land and took possession over it. They got be hind the snow house made a pile of snow balls waitin for the army to come. When they came they began snowballing.



The air was covered With snow balls. Finally some of the men climbed the rock wall and the men were caught by Harris army and Made prisoners by Harris army.

## SERIES E

## E1

## A Snaw balle Fight on Slitters Hill.

Slatters Hill marked the boundry line of the North and South sides of the town. There was the im agin ary line the boys all observed when any one crossed the line "took his life in his hand," so as to speak.

One morning the South Enders were very diss agreeably surprised to find that "we" North Enders had built a very farmied able breast work of snow at the top of the hill. The news was passed araund through town that the South Enders were going to attact out fort on Saturday afternoon. when Saturday afternoon come all the fighting boys that we could muster, in the North End of the town, were lying behind the fort with about three hundred snow balls piled up around them. It wasn't long untill the enemy appeared led by Mat Ames. The fight was on when our General Jack Harris, raised up and planted a snow ball with great precision in the Stomach of Mat Ames.

from that time an the air was thick with snow balls, The South Enders stormed the fort time and again. When any of their men would reach the fort we would seize them and keep them as prisoners. We were all but beaten once. Nothing but the bravery of Jack Harris and his men saved us. we leaned far over our breast works and showered snow balls into their mist untill they were forced to retreat. They marched away whistling "yankee Doodle" leaving us still holding the fort. When they were out of sight General Harris complimented his men for bravery. Every boy's heart in the bunch swelled with pride at this time. Afterwards when grit, bravery and endurance were spoken of you would hear. "By Golly, you aught to have been in the battle on Slatters Hill."

## E2

## A Snowball Fight on Slatter's Hill

Slatter's Hill is a rise of ground covering an acre and a half and forming an imaginary line between the north end and the south end of toun.

One morning the South End boys awoke to find us North Enders well entrenched behind a snow fort on top of Slatter's Hill. Within



an hour it had become known all over town that the South Enders were mobilizing for an attack on our fortifications that afternoon.

By one o'clock the advancing army had begun to ascend the Hill. As soon as they were within firing distance our General, Jack Harris, opened fire with one of our three-hundred snowballs, catching General Mat Ames of the attacking forces in the stomach! That was a signal for the fight proper, and instantly the air was white with flying missiles.

On they came! A dozen of the enemy reached our ramparts and five mounted the wall, only to be seized by the legs and dragged in, captives.

All afternoon the battle lasted. Many times we were within an ace of having Fort Slatter taken from us; but each time General Harris and his gallant staff beat off the invaders. Darkness found General Harris's handkerchief still flying above us, and the South Enders marched away to the tune of Yankee Doodle.

In after years, when the boys would brag of snow-fights, we would always say, "By golly, you ought to have been at the Battle of Slatter's Hill!"

### E3

A Snowball Fight on Slatter's Hill North End un koint one Slatter's Hill Maid a port South End and it was tine Mines till one allover toun naxt day it un point it was snowball fight Mat Ames right in the stumke and clumb up on the icy walls grab hime along leag and made tem as priser.

### E4

#### A Snow Boll Fright on Slatters Hill

The snow ball fright on Slatters Hill was certainly a fight it lasted a long time a fort was there and it was commanded by Gen. Harris it Started when one of the boys in the fort threw a single ball and hit one of the enemy right in the pit of the stomach and then they began the fright some of the enemy came up and was draged in the fort by their legs and taken prisnors and soon the enemy had to retreat singing yandy doodle dandy

### E5

#### A Snowball Fight on Slatter's Hill

Slatter's Hill, usually known as No Man's Land, consisted of an acre and a half situated on an imaginary line separating the North End from the South End of town.

Thirty North Enders quietly ascended Slater's Hill one winter evening and built a fort. Imagine how indignant the South Enders were when they awoke next morning to find us behind our snowy fort in firm possession of the Hill, with Jack Harris's handkerchief waving defiantly above us!

News quickly spread that the South Enders, under the leadership of Mat Ames, would attack our citidel that afternoon. We piled up three hundred snowball in preparation for the defensive.

At two o'clock the South Enders approached, fifty strong, led by General Ames. Our garrison was in command of General Jack Harris.

The zero hour had come. In utter stillness the enemy climbed the hill. Suddenly General Harris opened fire and hit General Ames in the stomach. Instantly the air was thick with flying snowballs. Undaunted, the enemy surged up the Hill, shoulder to shoulder. Twelve of them succeeded in reaching the walls, but as fast they mounted our icy parapets we seized them and made them prisoners. Twice we were almost driven from our position, when General Harris and his brave staff leaned over the ramparts and hurled the Huns down the Hill.

At sundown Fort Slatter was still unconquered—our Verdun was saved! Ames and his army retired under cover of darkness, whistling, "Yankee Doodle," while our General commended us for our valer.

Afterwards, when brave deeds were spoken of, someone would always say, "By golly, you ought to been at the fight on Slatter's Hill!"

## E6

### A Swonball Fight on Slatter's Hill

Their was a Snoball battl between north enders and sauth enders on Slatters Hill and the north enders went up first and bilt a snar fort and made three hundred snowballs and the south end soon knew it all ofer the town and the south end got ready and went up and the began to fight Jack Harris throd the first snowball and hit a man on the other side in the stumik and noxed him down and the air wat thick with snawblles and when was don th south end went playing yaccyduledy when they got home the tald very botty the fight up on Slatters Hill.

## E7

### A Snowball Fight on Slatters Hill.

Slaters Hill was a small rise of ground covering about an acre and a quarter of ground. One day in winter the North End took

possession of this hill and built a snow fort on the top. The South End soon found it out and resented the occupaney. About two o'clock they attacked the fort with snow balls but were driven off again and again. Finally they desisted and marched away singing "Yankee Doodle." It was a memorable fight long to be remembered in our town.

### E8

#### A Snowball Fight on Slatter's Hill.

Never will I forget the glorious snowball fight on Slatter's Hill! The scene of the battle, Slatter's Hill, was a mound which nominally marked the boundary between the North End and South End of town.

One night about thirty of the North Enders stealthily took possession of the hill and built a snow-fort there. Imagine the surprise and dismay of the South Enders when, next morning, they saw Jack Harris's silk handkerchief waving triumphantly over our fortifications!

Armed with three hundred snowballs, we lay behind the barricade awaiting the commands of our leader, General Jack Harris. The enemy was not long approaching. Fifty strong and led by Mat Ames, they stormed the hill. The first ball fired by General Harris struck General Ames squarely in the stomach. Then the balls came thick and fast. Three times the enemy were on the verge of taking our stronghold. The third time they were driven back only when General Harris, leaping recklessly onto our ramparts, rallied his soldiers to a supreme effort. Several of the enemy were captured, the rest fled down the hill. We lost not a single man.

When General Harris, a truly impressive figure in spite of his black eye and mussed clothing, said, "I am proud of you, my soldiers!," cheers rent the air. Our victory was complete.

Even now, when stories of some great battle, some thrilling struggle are related, the boys merely shrug their shoulders and say in a slightly bored voice, "Aw gosh, you should have been at the fight on Slatter's Hill!"

### E9

#### A Snowball Fight on Slatters Hill

Slatters Hill was an imaginary line dividing the north & South End of the town. one day Jack Harris with his recruits built a huge snow fort on the Hill. The following Saturday the South End fellows attacked it. They were repulsed after a hard battle and if any one ever speaks of bravery in that town they say "By golly! you should have been at Slatters Hill."

## E10

## A Snofall Fight on Slatters Hill,

The men were bodily wanded and and the snowbolls were so thick that no an could of passed with out getting hit with a snow ball. Some of the men had to go and be operated am and the snow forst was bilt out of snow and they go got a lot of snow balls and prepered for them and ane snowie hill the snow was like rane falling in a stormy day.

## SERIES F

## F1

## A Snowball Fight on Slatter's Hill.

Slatter's Hill is the No-Man's-Land that lies between the North Ends and South End of our town. It has been the scene of many a bitter fight between the gangs from these two sections.

Imagine the chagrin of the Southenders one showy morning when they perceived that the Northenders had erected a huge snow-fort on Slatter's Hill, over which defiantly waved Jack Harris's silk handkerchief! The challenge was accepted, and the Southenders prepared for battle.

About two o'clock Mat Ames led fifty stalwart soldiers up the hill. Suddenly a ball thrown by General Harris took him in the very pit of his stomach. Roused by the opening volley, the Southenders rushed furiously to the attack. Time after time they charged, only to be met by a deadly barrage. Time after time they retreated to mend their broken ranks. In a last desperate assault twelve of the enemy reached our walls, but the example of our brave General, who leaned recklessly over the ramparts to repulse the attack, enabled us to make prisoners of five of the enemy and hurl the rest back down the hill. Exhausted, defeated, the Southenders fled ignominiously, whistling "Yankee Doodle" while we jeered and hooted them.

Long, long after, whenever bravery was spoken of, a veteran of this gallant struggle would say, "By golly, you ought to have been in the fight on Slatter's Hill!"

## F2

## A Snowball Fight on Slatter's Hill

Slatter's hill was a rise of ground in the central part of the town, and covered about an acre and  $\frac{1}{4}$  of land, and it was sometimes called "no Mans Land" because nobody lived on it. One



morning on getting up the consternation of the South Enders was complete when on getting up they found a strong fort on Slatters hill well garrisons by the North Enders and commanded by Gen Jack Harris.

The consternation of Gen. Mat ames of the South Enders was complete and he started immediately to recruit an army to storm the fort in the afternoon. Early in the afternoon the South Enders 50 Strong and headed by Gen. Ames moved up, and the conflict was opens by our own Gen. J. Harris firing a large icy now-ball full into the pit of Gen. Ame's stomach, almost instantly air was thick with snowballs and we narrowly missed losing the fort that afternoon. Evening arriving the South Enders marched away singing Yankee Doodle and us jeering them. Ever since the veteran's of this battle have said, when noble deeds were spoke of, "By Golly you ought have been in the battle on Slatter's hill"

### F3

#### Asnowball fight

Some of the north End boy had a fort on Slatter's Hill and the South End boy are playing to take the fort. at three oclock Saturday afternoon, a boy named Jack Harris was captin of the north end and Mat Ames of the South End.

The time came for the big fight to start Mat Ames toled his men to go right up the hill and take the fort. Jack Harris sturted the fight by kocking mat Mat Ames then the snowballs begun to fly when Mat Ames men reached the top of Slatters hill there were only about ten of them and Harry men drove them away andd all rest of the South End boy went home singing "Yankee Doodle."

### F4

#### A Snowfall Fight on Slatter's Hill.

Slatter's Hill or No Mans Land as it is usually called marks a boundary between the North and South end of the toun. One evening the North Enders went up and took possession of the fort. The next evening the South enders marched up and made three hundred snowballs waiting for the enemy. The enemy was not veyr long comming, When they got ther one of them was hit in the stomach with a snow-ball. This started a fight and the North Enders were drove back. Then our captain said soldiers I am proud of you. Then my heart leaped up into my mouth.



## F5

a Sowbale fight on Slatters Hill.

O Boy you out to ben oup to the fight a L uowball fughet on Satter's Hill.

## F6

A Snowball On Slaters Hill.

One doy an Slatters Hill the north ender and the south ender were going to have a battle an ane Satenday evening at tw a Oclock. They threw up breast work And prepared for the battle which was coming. The North ender made them up three hundred snow balls. General Harris was the heed of the team. Soon they get ready and marched down as the South ender Ane of them hit Mr. Harris in the Stumach and the people began to cheer him for hitting him The South enders gave up. And began to run. When they went back to their home. They aught to be in the battle with us they said to the boys.

## F7

a Snowball fight om Satters Hill

a snowball fight om Satters Hill some owmer boy om South side and it wase om North Side So Some of the boys om South hill sat-day after noorm wend out om Satters hill and Mad a forte orf ice forhn Harris wase the tipten so it wase nounge al over towen a paser at the Boys culs aspased soi thay wnt out om sunday they baid a fort to and thay had about three hunders Snow bolls thay wade to north and coim up and the Snowballs bagin to fly in the are and jalk Harris Hade teken man Hate tepen foilk Harrie in the eie and he fell to the goown and fire orf the men goit to then.

## F8

A Snowball Fight on Slatter's Hill

Mo man's land was a aker and a hlaf wen Moth end went up to Slatters hill and made a fort and wen South end coune the saw the North end ther thay told every boy their was going to be a fught thws satay and wen South end got thur thear was Morth end wath 3.00 nen and South end had 50 nen and thar the fight began wath 3.00 snow balls and Jack Harris was the leader and if it was for hen thay wood hade got lurk wen the war was over Jack hade a black i and the Morth went away sang unkdulse. and evey body sad you ot to have seen the fight

## F9

A Snowball Fight  
on Slatters Hill.

The north end fixed a fort on Slatters Hill, and they were going to have a snoball fight with the South End on saturday afternoon. When the time come for the battle, and when it was started the first snow ball that was threw was by mat ames which hit Jack Harris. Then there were snowballs after snowballs soiling through the air. The north End won the battle and left singing Yankey Duple. The South End gave mony shouts as the North End left.

## F10

## A Snaw boll on fight on Slatters hill

Us boys and some more of the South and North had A fight with loch Other, Our general was fron the south nor H Aras and North was G. Ames General Ames hit Gen Haros in the eye with One And whipped the South they hod three hundred snow bolls turned on us the ver pulling us North Out Of A big nall and putting us in prison and said when the South whipped them you have got the best army we are whipped.

As they were going out of sight we sang yankey Doodle and holled at them Good byboys.

## SCORE KEY TO PRACTISE LISTS

SERIES A		SERIES B		SERIES C	
Theme	Score	Theme	Score	Theme	Score
A1	4.7	B1	7.2	C1	4.8
A2	1.4	B2	3.3	C2	0.0
A3	8.9	B3	4.0	C3	7.3
A4	2.7	B4	6.4	C4	5.3
A5	2.35	B5	1.8	C5	2.6
A6	6.6	B6	5.0	C6	6.8
A7	3.0	B7	.8	C7	4.1
A8	.5	B8	2.8	C8	7.6
A9	1.7	B9	1.4	C9	1.5
A10	5.5	B10	1.3	C10	5.4

SERIES D		SERIES E		SERIES F	
Theme	Score	Theme	Score	Theme	Score
D1	6.5	E1	4.5	F1	7.3
D2	2.6	E2	7.0	F2	4.0
D3	7.9	E3	.4	F3	2.4
D4	3.2	E4	2.0	F4	3.7
D5	.8	E5	6.1	F5	.3
D6	4.5	E6	1.9	F6	2.5
D7	1.25	E7	5.4	F7	1.0
D8	1.1	E8	8.0	F8	1.1
D9	8.0	E9	3.9	F9	2.7
D10	2.2	E10	1.65	F10	1.6

SECTION VII

COMPARATIVE SCORES IN COMPOSITION

Expressed in Hillegas Terms. To Be Used with Either the Hillegas, the Thorndike, the Trabue (Nassau), the Hudelson, or the Lewis Scales.

STATES	SCHOOLS	GRADES										YEAR	Mo.	ASSIGNMENT	SCALE USED IN SCORING
		4	5	6	7	8	9	10	11	12					
	NATIONAL STANDARDS*	3.0	3.6	4.2	4.7	5.3	5.5	5.9	6.3	6.7		Jan.			
	Southern Standards**	2.6	2.5	3.4	3.9	4.1						Jan.		Nas.	
	54 High Schools in over 35 states.						5.0	5.9	6.4	6.7					
Ala.	Mobile Co., whites outside of Mobile City.	3.2	3.9	4.3	4.2		5.6	6.4	6.05	6.8					
	Mobile City whites	3.3	2.85	4.6	4.95		6.7	6.9	7.2	7.5					
Ark.	Fort Smith whites	2.3	2.9	3.8	3.9	4.5	5.1	5.6	6.0	6.2		Feb.		Thorn.	
	Fort Smith colored	2.0	2.9	3.4	2.9	3.5						Feb.		Nas.	
Colo.	Idaho Springs		3.2	3.7	4.3	5.0	5.5	5.0	4.7	6.0		Sept.			
Ill.	Rockford					5.0									
Ind.	Bloomington (Jr. High School)					4.8	5.7	5.7				1921	Feb.	Median score on 18 assignments.	
	Gary	3.0	3.3	3.3	4.0	4.6	4.7	5.6	6.4	6.2			Spring		Hud.
	Laporte	4.1	4.4	5.0	5.8	6.8									
Iowa	Charles City		3.7	4.0	4.7	5.2									
	Cherokee		4.0	5.0	5.5	6.0									
	Muscatine	3.4	4.1	4.6	4.9	5.6	6.0	6.65	6.6	7.1			May		Thorn.
	Stuart						5.3	6.0	6.3	6.2			Apr.		Thorn.
	Washington		4.2	5.0	5.1	5.7	6.1	6.7	7.0	7.6			Jan.		Thorn.
	Waterloo	2.8	4.15	4.1	5.0	5.8	5.1	6.6	7.6						
	Lawrence				4.9	5.7	5.9	5.8	6.2	6.4			May		Nas.
Kans.	Baltimore County		5.15		5.7										
Md.	Baltimore, B. B. I. (Boys)						5.5	5.9	6.3	6.7		1921	Dec.	An Exciting Adventure	Hud.
	" B. C. C. (Boys)						5.1	6.5	6.1	5.4		1921	Dec.	"	Hud.
	" E. H. S. (Girls)						5.4	5.9	7.5			1921	Dec.	"	Hud.
	" W. H. S. (Girls)						6.3	5.7	6.5			1921	Dec.	"	Hud.
	" , negro coeducational						5.9	7.2	6.5	7.2		1921	Dec.	"	Hud.
	" , all											1921	Dec.	"	Nas.
Mich.	Detroit (50,000 pupils in 145 schools)	2.6	3.3	3.9	4.8	5.4						1921	Jan.		Nas.
	Flint	3.3	4.6	4.8	5.3	6.1						1922	Jan.		Nas.
	Republic	3.0	3.7	4.3	4.7	4.5	4.6	5.4	6.05	5.8			Dec.		Nas.

\*Weighted composite scores of all pupils whose results are available.

\*\*Dr. Garrison's standards, based upon 1806, 1605, 1429, and 1167 pupils in Grades 4 to 8 respectively from all the Southern states and W. Va., Ky., Okla., and Mo. For percentile norms based upon these scores, see *The Virginia Teacher*, Sept.-Oct., 1921, or Peabody College Bureau of Tests and Measurements, Bulletin No. 1, Jan. 27, 1922.

## COMPARATIVE SCORES IN COMPOSITION—Continued

STATES	SCHOOLS	GRADES											YEAR	Mo.	ASSIGNMENT	SCALE USED IN SCOR- ING
		4	5	6	7	8	9	10	11	12						
Minn.	Austin.....	2.1	2.6	3.6	4.45	4.6	5.2	5.8	5.9	6.0			1921	Jan.		Hud.
	St. Paul.....	2.0	3.4	3.5	4.1	5.0	5.8	5.7	6.3	6.6				Feb.		Nas.
	Cameron.....								5.5					Oct.		Nas.
	Joplin.....	3.6	4.2	4.85	5.3	5.6										
Mo.	Butte.....	2.3	2.8	3.4	3.8	4.1										Hil.
	Chatham.....	2.95	2.85	4.1	4.0	5.3										
	Hackensack.....	2.7	3.2	4.0	4.4	5.4	6.0	6.8	7.0	7.3			1922	June		Nas.
	Middletown.....	3.5	4.0	4.7	4.5	5.2	5.1	6.0	6.3	7.0						
N. Y.	Mt. Holly.....															
	Newark.....	2.4	2.5	3.6	4.3	5.3										
	Paterson.....	2.2	3.4	3.5	4.1	5.0	5.8	5.7	6.3	6.6			1918	Spring		
	Plainfield.....	3.0	3.8	4.6	5.0	5.2	5.5	6.1	6.6	6.4			1918	Apr.		Nas.
	South Amboy.....	2.6	2.8	3.2	3.5	3.65							1918	Apr.		Nas.
	South River.....	2.3	2.55	3.8	4.75	5.6	5.2	5.0	5.9	6.3						
	Westfield.....	3.7	4.3	5.2	5.0	6.1	6.1	6.7	6.8	6.9			1918	Apr.		Nas.
	Cold Springs.....	2.95	3.7	4.9	5.0	6.0	5.8	5.7	5.7	7.4						
	Ethical Culture School, N. Y. City.....		4.0	4.7	5.4	5.7										
	Friends School, Brooklyn.....	2.85	3.7	4.4	4.95	4.9	5.7	7.1	6.9	7.2			1919	Feb.		
	Lookport.....	2.7	3.2	4.0	4.4	5.4	6.0	6.8	7.0	7.3			Apr.			Hud.
	Nassau County.....	2.8	3.4	3.8	4.2	4.6	5.0	5.25	5.7	5.9			Spring			
N. C.	Woodmere (private).....	3.15	3.7	4.25	6.6	6.9	7.0							Nov.		Nas.
	New Hanover Co., city whites, all schools.....	2.8	3.6	4.4	5.0	5.5										Nas.
	" " " " city colored, all schools.....	3.1	3.7	4.1	4.4	5.1										Nas.
	" " " " Williston Industrial (colored).....						5.0	5.8	6.2	6.6						Nas.
Ohio	" " " " rural whites, all schools.....	2.8	3.4	4.1	4.6	4.5	6.0	6.3								Nas.
	Delaware County.....															Nas.
	Delaware City.....						3.9						1913	Sept.		
	Kent.....	2.4	3.8	4.2	4.8	5.5	5.5	7.2	6.6	6.6			1913	Sept.		
Okla.	Xenia.....												1921	May		Nas.
	State Survey, rural.....	2.7	3.3	4.1	4.0	4.5	5.3	5.7	5.0	6.3						
	" " consolidated.....	2.6	2.9	2.9	3.9	4.0	5.0	5.6	6.3	6.7			1922	May		Hud.
	" " towns.....	2.6	3.0	3.8	4.2	4.9	5.3	5.9	5.9	6.6			1922	May		Hud.
Pa.	" " cities.....	2.8	3.5	4.4	4.6	5.3	5.8	6.1	6.4	6.8			1922	May		Hud.
	Ardmore.....	3.35	4.3	4.75	4.7	5.7	5.7	5.6	6.2	6.6			1922	May		Hud.
	Bloomsburg.....	2.6	3.7	3.95	4.1	4.6	6.3									Hud.
	Philadelphia.....												Oct.			Nas.
S. D.	Reading, Boys High School.....	3.0	3.0	3.6	3.6	4.5	4.7	5.0	4.7	5.5			1921	Feb.		Hud.
	Deadwood.....						5.2	5.1	5.8	5.85			1920	Mar.		An Exacting Experience
	Lead.....	3.6	4.1	4.65	5.0	5.6										
													1916	June		



## COMPARATIVE SCORES IN COMPOSITION—Continued

STATES	SCHOOLS	GRADES											YEAR	Mo.	ASSIGNMENT	SCALE USED IN SCOR- ING	
		4	5	6	7	8	9	10	11	12							
Tenn.	Chattanooga.....	3.6	4.0	4.4	5.0	5.6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Nas.
	Mt. Pleasant, whites.....	2.8	2.1	4.2	4.0	6.2	5.4	6.3	6.4	6.75	.....	.....	.....	1921	Jan.	.....	Nas.
	" " colored.....	13	32	1.05	2.0	.....	.....	.....	.....	.....	.....	.....	.....	1921	Jan.	.....	Nas.
Utah Va.	Salt Lake City.....	3.6	3.8	4.6	5.2	6.4	.....	.....	.....	.....	.....	.....	.....	1915	May	.....	Nas.
	State Survey, white boys.....	.....	.....	.....	.....	.....	5.4	.....	.....	.....	.....	.....	.....	1919	May	The Most Exciting Ride I Ever Had.....	Nas.
	" " colored boys.....	.....	.....	.....	.....	.....	4.85	.....	.....	.....	.....	.....	.....	1919	May	The Most Exciting Ride I Ever Had.....	Nas.
W. Va.	" " white girls.....	.....	.....	.....	.....	.....	5.6	.....	.....	.....	.....	.....	.....	1919	May	The Most Exciting Ride I Ever Had.....	Nas.
	" " colored girls.....	.....	.....	.....	.....	.....	5.0	.....	.....	.....	.....	.....	.....	1919	May	The Most Exciting Ride I Ever Had.....	Nas.
	25 schools.....	.....	.....	.....	4.6	5.4	5.5	6.2	6.5	6.7	.....	.....	.....	1921	Feb.	Median score on 18 assignments.....	Hud.
Wis.	Philippi.....	.....	.....	.....	.....	3.6	5.1	5.9	6.4	.....	.....	.....	.....	1921	Mar.	The Most Exciting Ride I Ever Had.....	Hud.
	Janesville.....	2.4	2.8	3.7	3.8	4.5	6.2	6.5	.....	.....	.....	.....	.....	.....	.....	.....	.....
	7247 pupils in 305 accredited high schools and academies outside of Chicago.....	.....	.....	.....	.....	.....	.....	.....	.....	6.4	.....	.....	.....	1920	Mar.	An Afternoon Off.....	Nas.
Cal.	Berkeley.....	3.3	4.0	3.9	5.7	5.8	5.8	.....	.....	.....	.....	.....	.....	.....	June	.....	Nas.
	Richmond.....	2.8	4.7	4.9	5.1	5.9	.....	.....	.....	.....	.....	.....	.....	.....	June	.....	Nas.
	Twelve Schools.....	1.5	2.8	3.3	3.5	4.4	.....	.....	.....	.....	.....	.....	.....	1921	Oct.	What I Think I Shall Enjoy in School This Year.....	Nas.

## BIBLIOGRAPHY<sup>1</sup>

### I. AVAILABLE SCIENTIFIC INSTRUMENTS FOR MEASURING COMPOSITION OBJECTIVELY.

1. F. W. Ballou, "*Harvard-Newton Composition Scales.*" Harvard University Press, Cambridge, Mass. (A separate scale for each discourse.)
2. F. S. Breed and F. W. Frostic, "*A Scale for Measuring the General Merit of English Composition in the Sixth Grade.*" University of Chicago Press, Chicago, Ill.
3. M. B. Hillegas, "*A Scale for the Measurement of Quality in English Composition for Young People.*" Bureau of Publications, Teachers College, Columbia University, New York City.
4. E. Hudelson, "*Hudelson English Composition Scale.*" World Book Company, Yonkers-on-the-Hudson, New York.
5. E. E. Lewis, "*Scales for Measuring Special Types of English Composition.*" World Book Company, Yonkers-on-the-Hudson, New York.
6. F. L. Thorndike, "*Thorndike Extension of the Hillegas Scale,*" Bureau of Publications, Teachers College, Columbia University, New York City.
7. M. R. Trabue, "*Nassau County Supplement to the Hillegas Scale.*" Bureau of Publications, Teachers College, Columbia University, New York City.
8. M. J. Van Wagenen, "*Minnesota English Composition Scales.*" College of Education, University of Minnesota, Minneapolis, Minn. Also announced for early publication in monograph form by the World Book Company, Yonkers, N. Y. (Separate scales for narration, description, and exposition.)
9. M. H. Willing, "*Willing Scale for Measuring Written Composition.*" Public School Publishing Co., Bloomington, Ill.

### II. OTHER SCIENTIFIC OR SEMI-SCIENTIFIC INSTRUMENTS

10. W. G. Faust, "*An Effort to Standardize Descriptive Theme-Writing; for the Senior Year of the High School.*" *English Journal* 5: April, 1916, 257-271.
11. I. McKinney, "*An Experiment in Criticism,*" and "*More Comments on Criticism.*" *Illinois Association of Teachers of English, Bulletin* 11: October 1, 1916, 1-16; and 10: October 1, 1917, 1-8.
12. J. M. Rice, "*The Results of a Test in Language.*" *Forum* 35: October 1903, 269-279. Reprinted in his *Scientific Management in Education*; Hinds, Noble, and Eldredge, 1913, Philadelphia.
13. W. E. Stark, "*Measurement of Eighth-Grade Composition.*" *Sch. and Soc.* 2: August 7, 1915, 208-216.

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<sup>1</sup>The literature on the subject of English composition is voluminous. This list includes only references to scientific instruments for measuring composition objectively, and to pertinent scientific articles. As such it does not presume to be exhaustive. Neither does it include mention of the numerous devices for measuring objectively the various elements of composition.

14. C. S. Wolfe, "*The Topeka Scale for Judging Compositions.*" Illinois Association of Teachers of English, Bulletin 9: March 1, 1917.

### III. REFERENCES TO RELEVANT SCIENTIFIC ARTICLES

15. F. W. Ballou. "*Harvard-Newton Composition Scales.*" Harvard Bulletin, No. 2, Harvard University Press, Cambridge, Mass.
16. Boston. "*The Achievement of Pupils in Letter-Writing.*" Bureau of Educational Investigation and Measurement, Boston Bulletin, No. 16, June, 1918.
17. G. C. Brandenburg. "The Quality of Freshman Composition." *School and Society*, 14: Dec. 17, 1921, 579-584.
18. F. S. Breed and F. W. Frostic. "A Scale for Measuring the General Merit of English Composition in the Sixth Grade." *Elementary School Journal*, 17: Jan., 1917, 307-325.
19. T. H. Briggs. "*The Rating of Themes by the College Entrance Examination Board.*" Leaflet of the New England Association of Teachers of English, 18: Dec., 1917, No. 149.
20. M. D. Brown and M. E. Haggerty. "The Measurement of Improvement in English Composition." *English Journal*, 6: Oct. 1917, 515-527.
21. B. Brownell. "A Test of the Ballou Scale of English Composition." *School and Society*, 4: Dec. 16, 1916, 938-942.
22. C. Gunther. "My Experience with the Hillegas Scale." *English Journal*, 8: Nov., 1919.
23. M. E. Haggerty and M. J. Van Wagenen. "*An Investigation into the Amount of Improvement in Ability to Write English Composition.*" Bulletin of the University of Minnesota, 22: 1919. See also *Journal of Educational Psychology*, 11: Jan., 1920, and *School and Society*, 4: Nov. 18, 1916, 761-772.
24. M. B. Hillegas. "A Scale for the Measurement of Quality in English Composition for Young People." *Teachers College Record*, 12: Sept., 1912.
25. E. Hudelson. "Standards and Measurements in English Composition." *Proc. Second Indiana Conference on Educational Measurements*. Indiana University Press, 1915, Bloomington, Indiana.
26. E. Hudelson. "Some Achievements in the Establishment of a Standard for the Measurement of English Composition in the Bloomington, Indiana Schools." *English Journal*, 5: Nov., 1916. 590-597.
27. F. W. Johnson, "The Hillegas-Thorndike Scale for the Measurement of Quality in English Composition by Young People." *School Review* 21: Jan. 1913; 39-49.
28. I. Kayfetz, "A Critical Study of the Hillegas Composition Scale." *Pedagogical Seminary*, 21: Dec., 1914; 559-577.
29. I. Kayfetz, "A Critical Study of the Harvard-Newton Composition Scales." *Pedagogical Seminary*, 23: September 1916; 325-347.
30. F. J. Kelly, "*Teachers' Marks.*" Contrib. to Educ., No. 66, 1914. Bureau of Publications, Teachers College, Columbia University, New York City.

31. W. S. Monroe, J. C. DeVoss, and F. J. Kelly, "*Educational Tests and Measurements.*" Houghton Mifflin, 1917. (Contains directions for administering and scoring the Hillegas, Harvard-Newton, and Willing Scales.)
32. E. C. Noyes, "Progress in Standardizing the Measurement of Composition." *English Journal*, 1: November 1912; 532-536.
33. J. Routh, "A Method of Grading English Composition." *English Journal*, 5: May, 1916; 341-345.
34. L. W. Sackett, "Comparable Measures of Composition." *Sch. and Soc.*, 5: February 24, 1917; 233-239.
35. "Second Report Committee on Minimal Essentials in Elementary School Subjects." *Sixteenth Yearbook, Part I*, of this Society, 1917.
36. D. Starch and E. C. Elliott, "The Reliability of the Grading of High-School Work in English." *School Rev.*, 20: September, 1912; 442-457.
37. W. E. Stoddard, "A comparison of the Hillegas and Harvard-Newton Scales in English Composition." *Pedagogical Seminary*, 23, December 1916, 498-501.
38. Surveys, The Use and results of objective composition tests and scales in such surveys as those of Butte, Denver, and Salt Lake City, and the Virginia State Survey.
39. W. W. Theisen. "Improving Teachers' Estimates of Composition." *School and Society*, 7: 143-150.
40. E. L. Thorndike. "A Scale for Measuring the Merit of English Writing." *Science*, 33: June 16, 1911, 935-938. See also *Journal of Educational Psychology*, 2: May, 1911, 361-368.
41. E. L. Thorndike. "*English Composition: 150 Specimens Arranged for Use in Psychological and Educational Experiments.*" Bureau of Publications, Teachers College, Columbia University, New York City.
42. E. L. Thorndike. "Notes on the Significance and Use of the Hillegas Scale." *English Journal*, 2: Nov., 1913. 551-561.
43. M. R. Trabue. "Supplementing the Hillegas Scale." *Teachers College Record*, Jan., 1917, 18: 51-84.
44. M. J. Van Wagenen. "The Accuracy with which English Themes may be Graded with the Use of English Composition Scales." *School and Society*, 11: April 10, 1920, 441-450.
45. M. J. Van Wagenen. "The Minnesota Composition Scales; Their Derivation and Reliability." *Educational Administration and Supervision*, 7: Dec., 1921, 481-499. See also *Journal of Educational Psychology*, 11: Nov., 1920, 459-473.
46. P. M. Watson. "The Harvard-Newton Composition Scale." *Educational Administration and Supervision*, 1: Jan., 1915, 57-58.
47. M. H. Willing. "The Measurement of Written Composition in Grades Four to Eight." *English Journal*, 7: March, 1918, 193-202.
48. M. H. Willing. "*The Measurement of Written Composition in the Public Elementary Schools of Denver, Colorado.*" Master's thesis, University of Chicago. Unpublished. See also the Denver Survey.
49. T. H. Briggs, "English Composition Scales in Use." *Teachers College Record*, November, 1922, 423-452.





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# ABSTRACTS OF ADDRESSES TO BE MADE IN THE DISCUSSION OF THIS YEARBOOK

## THE AIMS OF ENGLISH COMPOSITION TEACHING

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### (Abstract)

The improvement of current conceptions of the aims of composition teaching is fundamental. All efforts at improvement rest upon it. So far as methods are conscious, they are guided by the teacher's objects. Measures of results, if they are to be useful, must be devised in view of what is to be accomplished and data derived from their application must be interpreted in the same way.

"General merit" is, however, too vague a term to serve as anything more than a point of reference for a survey of a most superficial sort. It can to no appreciable degree serve as a guide to classroom work. At the best, evidence of the lack of it indicates merely that there is need for more specific diagnosis before remedial measures are undertaken. Improvement of teaching requires analysis of composition into the several abilities of which it is composed. Such analysis will make it possible to employ aims as standards of achievement.

The first step toward such an analysis may be taken by distinguishing the composition of images from the composition of ideas. In general, the former is regarded as an end in itself, as art in the narrow sense. The latter figures primarily as the means to an end, as a practical art. Notwithstanding a considerable overlapping of abilities, these two types of expression are distinguishable. The differences grow out of a disparity of purposes, which lead to contrasting methods of appeal and of response on the part of the reader or listener. Failure to recognize the practical as set off from the literary delays our approach to the maximum of efficiency in this field. This principle is partly recognized by teachers

who complain that the pupils can be given only one mark for all phases of the English work. Apparently, however, they have in mind only a course in literature in general on the one hand and of composition of all sorts on the other. The distinction goes farther. Composition itself has two modes.

Even more serious as regards social values is the almost universal failure to give to oral composition its rightful place. "Composition" means to teachers apparently the writing of "papers" or "themes." The weekly or bi-weekly "theme," sedulously required and filed, is a *written* document. In point of fact children and young people, to say nothing of adults, have little need for writing anything except occasional letters and such outlines, summaries, reports, and examinations as are necessary to the work of the various classes, and these are precisely the forms in which least practice seems to be given in English classes. Save for the school paper and the school magazine there would be no outlet at all for much of the skill and enthusiasm so persistently sought in those classes.

But conversation, discussion, answers, oral reports, and accounts of an informative or persuasive nature actually constitute the daily language opportunities and requirements of the pupils. The first obligation of the English course would seem to be to make the use of English throughout the school as effective as possible.

Making all the allowance due for the content value of the written compositions now commonly required and for their reciprocal effect on reading, study, and intellectual processes generally, we must still maintain that the chief business of instruction in English composition in the schools is to give children and young people better command of the vernacular for their *present* social needs. No one will deny that the most pressing and far-reaching need is that of clear, pleasant, correct, and effective speech.

Failure to recognize and act upon this theory is the more inexcusable from the fact that there is good, if not abundant, evidence to prove that the foundation of good writing is good speaking. Even if this grows progressively less true as children grow older, it nevertheless remains true throughout the high-school age.



In many important respects it is literally the fact that the way to learn to write is to speak.

The bearing of this contention upon the problems involved in attempting to devise scales for the measurement of efficiency in composition is evident. There must be scales and standards in oral composition as well as in written. Such scales should embody only what the speaker said, not the mechanical errors he would have committed in putting his speech on paper. Such scales would be more useful, certainly as helps to teachers, than those now in use. If grammatical errors were also segregated, we should be far on the way toward standards in *composition*, apart from proofreading.

## METHODS OF TEACHING ENGLISH COMPOSITION

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(Abstract)

Dr. Hudelson in this study of English composition has investigated teaching methods only so far as to convince himself that he might be more profitably employed. He discovers from an exceptionally fruitful questionnaire on theme writing procedure that the practices among different types of schools and among similar schools are extremely varied. From an ingenious supplementary study of the relative weights assigned by teachers to composition elements he discovers that teachers do not at all agree in their judgments, and that even their tendencies do not seem very logical. These conditions encourage Dr. Hudelson to abandon the discussion of methods and to undertake the measurement of their values instead.

It would no doubt be well for the teaching of English composition if many more of us would follow his example. Until we do so, however, or until in some way we obtain sufficient scientific and objective verdicts on our various methods, we shall have to estimate their values by reference to such controls as these:

1. Their conformity with the aims of composition.
2. Their value for the development of the elemental merits as well as of general merit.
3. Their harmony with the psychological laws of learning.
4. Their provision for individual differences.
5. Their practicability in view of administrative conditions.
6. Their practicability in view of teachers' preparation.

The material on methods in the early pages of this book deals almost wholly with theme writing. Teachers of composition would in most instances, I think, agree that theme writing itself is the great and typical method of teaching written composition. With few reservations it is widely supposed to do the business. If one takes this theme writing procedure and exposes it to each of the above criteria in turn and then grants it a reasonable responsibility for the kind of English composition our high-school pupils display in other than English classes and in their voluntary correspondence, one will be able to work up an indictment of it on a great many counts.

There are some tests, of course, on which it will escape criticism. For instance, the handling of theme writing now in most schools seems to meet pretty well the aims set forth by the Committee on the Reorganization of English in 1917. Again, it undoubtedly does constitute an excellent device through which to stress general merit in composition. As now managed it also observes carefully what educational psychology has to say about interest and motivation. It is calculated to train pupils in the organization and interpretation of their own experiences. It adjusts itself easily to individual differences, probably more marked in English than in any other school subject. It particularly fits the preparation teachers now have. Teachers of English are always trained to handle theme writing, especially in the way of stimulating thought and originality.

On the other hand, theme production does not very obviously meet one of the most important of the Committee's aims. It does not seem ordinarily to be directed toward developing the "ability to compose on the first draft a clear and readable paragraph, or a series of paragraphs, on familiar subject matter, with due observance of unity and order and with some specific details." Writing themes usually involves a careful, thoughtful approach, a stimulation of interest by the teacher, possible outlining in advance and even oral presentation, then revising before handing in, meeting formal requirements as to ink, headings, etc., and finally correction and more revision. For example, it does not resemble very closely the kind of activity required of a pupil during examinations. Evidence is not at all lacking also that correctness in formal matters, so strictly insisted upon by the Committee, is not rapidly being improved in our high schools as a result of theme writing.

This whole system appears to take very little account of single merits in composition. Very few teachers report that in grading themes they stress anything but general merit. The tendency of this is, I believe, to dull the teacher's realization of the importance of distinct training in the separate elements of composition. It is true, of course, that the whole is not necessarily the sum of all the parts, but it is as certainly true that there cannot be a satisfactory whole unless all the parts are also satisfactory. Improvement in

our methods of teaching composition must, I am sure, involve more analysis by teachers and much more attention to the technique of developing single merits. In my mind this means that theme writing alone does not provide anything like adequate drill in such things as spelling, punctuation, grammar, sentence structure, or even the essentials of paragraphing. The habits needed in each of these can become fixed in no other way than by persistent, frequent, extensive, and energetic drill.

The amount of attention most schools now seem to be giving to theme writing also discourages the invention of ways for controlling practice in composition outside the English classroom. Teachers are pretty well obsessed with the idea that success in composition is identical with success in theme writing. I feel that one of the most important laws of habit formation, namely, the prevention of exceptions, is being violated far more than is necessary, because of English teachers' preoccupation with this special phase of composition. I predict that the first and most important effect of scientific measurement upon written composition will be to encourage the revival of drill on the composition fundamentals in the high school. High-school teachers will be required to learn how to teach such humble things as spelling, punctuation, functioning grammar, and sentence sense, in ways that really establish habits instead of through red ink suggestions from which only the conscientious profit.

As to adaptation to administrative conditions, theme writing and theme correction can never secure much approval. The English teachers have been telling us for years that they are overburdened with the mere clerical work of theme marking. They have been given about as much relief in the way of a reduction of teaching load as they are likely to be given for some years, but still their work is distressingly wearing. The case is all the more discouraging because English teachers themselves feel that the ends they had in mind could be much more rapidly reached if a great deal more theme writing could be required. The trouble all arises from the conception of this as a habit-fixing method rather than as, what it really must be under existing conditions, a test of progress.

It would be unfair, of course, to leave the impression that theme writing is the only means used now by teachers to train pupils in composition. A great variety of composition textbooks are at our disposal to-day, all providing more or less for drill in the elements of the work, and full of suggestions for the perfecting of theme writing itself. Most well taught composition classes now are treated to at least occasional doses of spelling, grammar, punctuation, sentence structure, and vocabulary building; all of which, I suspect, do a great deal of good. My main contention is merely that this drill in the separate elements of composition for high-school pupils is at present too intermittent, too unsystematic, too incidental, too feeble, and too little guided either by careful analysis of the desired product in composition or by a diagnosis of the particular deficiencies of different types of pupils—or of different individuals themselves. Theme writing cannot be abandoned, but its usefulness as a check on progress or as a device for emphasizing general merit must, I think, become its chief justification rather than its relatively small value as a method for fixing the many elemental habits essential to a satisfactory general performance. Any extended experience with high-school pupils' written work should convince one that its startling obscurity and formlessness are due as much to inability to handle a pen, to spell, to punctuate, to find words, to use grammatical forms and English idioms, to construct even simple unified sentences, and to exercise anything like self criticism as they are to muddiness of thought, artificiality, or lack of feeling for rhetorical principles. We are spending too much time trying to build a temple without the sound of mallet or hammer, when the parts have not only not been pre-fitted but to a considerable extent not even analytically identified. The high-school teacher of composition needs to betake herself from the contemplation of this illusory building to the very real facts and activities of the preparatory drill shops.



THE UNRELIABILITY OF THE MEASUREMENT OF ABILITY IN  
WRITTEN COMPOSITION

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(Abstract)

Ability is always measured through a performance. In the case which we are considering, the written composition is the pupil's performance. After this performance has been secured, it must be described in quantitative terms before the process of measurement is completed. A composition scale is a device to use in securing this quantitative description which is the score assigned to the composition. A child's response to a given request that he write a composition on a specified topic is conditioned by his past experience and his present frame of mind. Hence, it is reasonable to expect considerable variations in the compositions written by a pupil in response to different assignments. Furthermore, competent judges will exhibit considerable disagreement in the scores which they assign to a given composition. Hence, we frequently find that two independent measurements of a pupil's ability in written composition are not identical. The coefficient of correlation is a statistical device for summarizing the general relation which exists between two sets of paired facts. When applied to two sets of measurements of a given ability, it is called the coefficient of reliability and furnishes us with an index of the reliability of a single measurement of the ability in question.

Professor Hudelson secured two compositions written on similar topics from several hundred children. In describing each composition Professor Hudelson has used the median of eight ratings by experienced judges, which is a more accurate or reliable measure than would be obtained by a single judge. The coefficients of correlation between the scores thus assigned to the pairs of composition are given in Table IX. They range from .69 to .84. The reliability coefficient calculated from single ratings of the compositions would be materially less. Brown's formula may be used as a means for making an approximate estimate. Applying this

formula to the highest of Hudelson's coefficients of correlation, we obtain .40 as an approximation of the corresponding coefficient of reliability.

Coefficients of correlation are difficult to interpret. The probable error of estimate furnishes us with a description of the relationship existing between paired facts which is more easily understood. A recent writer<sup>1</sup> has described the coefficient of .85 as approximately half way between a guess and perfect correlation. On the same basis a coefficient of correlation of .40 represents a relationship which is about nine-tenths of a guess. Professor Hudelson has failed to give us a precise measure of the variability of the scores from which the coefficients of correlation have been computed, but from Figure 10 we may estimate an approximate value for the median deviation, or P. E. For Assignments 8A and 8B, which he considers most typical, the median deviation appears to be approximately .85. Using this as a measure of variability, the probable error of estimate corresponding to a coefficient of correlation of .84 is approximately .30. This means that if a hundred pupils selected at random were measured with respect to their ability to write a composition in response to Assignment 8A, the scores<sup>2</sup> obtained for half of them would differ by more than .3 of a unit from the scores obtained in a similar manner by Assignment 8B. For the other half the difference would be less than .3.

The significance of a probable error of estimate of .3 depends upon the magnitude of the unit. The unit used here is relatively large. The average increase in norms from the fourth to the twelfth grades inclusive is only slightly more than .4 of a unit. Between the eighth and ninth grades the increase is only .2 of a unit. The greatest yearly increase is .6 of a unit. Therefore, we have the situation that the probable error of estimate is only slightly less than the average yearly increment in the norms. If we use the coefficient of reliability based upon a single rating of the compositions, we obtain the probable error or estimate of approximately

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<sup>1</sup>McCall, W. A. *How to Measure in Education*. New York: Macmillan Company, 1922, pp. 394.

<sup>2</sup>The scores in this case are the medians of the scores assigned by eight judges.

.5. In this case the probable error of estimate is materially greater than the average annual increment in the norms. Thus it is clear that the coefficients of correlation which Professor Hudelson gives should not be interpreted as indicating approximately perfect agreement between the pairs of measures. Furthermore, it should be kept in mind that they are calculated from the medians of eight ratings.

This procedure judges Professor Hudelson's data with reference to a severe criterion which we are only beginning to apply to our measuring instruments. However, if we are to avoid an inaccurate concept of the reliability of composition scales, it is necessary to apply procedures which will yield descriptions of the reliability in terms that can be fully appreciated. It is probable that Professor Hudelson is aware of the limitations of the composition scales which he recommends, but it appears likely that a reader may acquire a false notion of their reliability from certain statements appearing in the monograph. For example Assignment 1A 1B is recommended as a means of securing "a pretty reliable single topic upon which to test pupils for marking purposes." In another place he states that "this one assignment [8A or 8B] should test junior and senior-high-school pupils as reliably as if they were to be tested a number of times and their median score taken as their grade." Since the average of eight ratings has been used in this study, this statement may be misinterpreted by some readers. In another place he says "themes based upon this single assignment will, therefore, provide about as reliable a test of pupils' practical composition ability as could be gotten by averaging the the theme grades for a year." In referring to the scales which he is recommending he describes them as a means for measuring "those results in accurate, objective, stable, and understandable terms." This statement, coupled with another to the effect that the Hillegas and Thorndike scales "prove after considerable practice to be reliable instruments," will undoubtedly tend to give an impression concerning the reliability of composition scales which is not justified by the data which Professor Hudelson presents.

## BRICKBATS OR BOUQUETS

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(Abstract)

A scientific investigation is never complete until its findings have been verified through repetition of crucial parts of the original experiment by independent workers. Critical comments on Professor Hudelson's great contribution will be made on the basis of the results from a series of composition assignments taken from his list and following his general procedure.

This supplementary experiment is designed to test:

- (1) the validity of his conclusions in regard to typical and maximal assignments, and
- (2) whether or not such conclusions would be changed if rate of production as well as quality of product were taken into consideration.

In addition an attempt will be made to check the scale values of the two new composition scales presented by Professor Hudelson both by

- (1) re-measurement of the scale samples in terms of a standard scale, and
- (2) re-determination of the differences from sample to sample in terms of the frequency of recognition of such differences.

The experiment is now under way but was commenced so recently that no results are available at this writing. A detailed report will be made at the meeting of the society in February.



# Information Concerning the National Society for the Study of Education

1. **PURPOSE.** The purpose of the National Society is to promote the investigation and discussion of educational questions. To this end it holds an annual meeting and publishes a series of Yearbooks.

2. **ELIGIBILITY TO MEMBERSHIP.** Any person who is interested in receiving its publications may become a member upon application to the Secretary and subsequent approval by the Executive Committee. Membership may not be had by libraries or by institutions.

3. **PERIOD OF MEMBERSHIP.** Applicants for membership may not date their entrance back of the current calendar year, and all memberships terminate automatically on December 31st, unless the dues for the ensuing year are paid as indicated in Item 6.

4. **CLASSES OF MEMBERS.** Application may be made for either active or associate membership. Active members pay two dollars dues annually, receive two copies of each publication, are entitled to vote, to hold office and to participate in discussion. Associate members pay one dollar dues annually, receive one copy of each publication, may attend the meetings of the Society, but may not vote, hold office or participate in discussion. The names of active members only are printed in Part I of each Yearbook. There were in 1922 about 500 active and 900 associate members.

5. **ELECTION FEE.** New active and new associate members are required the first year to pay, in addition to the dues, an election fee of one dollar.

6. **PAYMENT OF DUES.** Statements of dues are rendered in October for the following calendar year. By vote of the Society at the 1919 meeting, "any member so notified whose dues remain unpaid on January 1st, thereby loses his membership and can be reinstated only by paying the election fee of one dollar required of new members." School warrants and vouchers from institutions must be accompanied by definite information concerning the name and address and class of membership of the person for whom membership fee is being paid.

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GUY M. WHIPPLE, Secretary-Treasurer.

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# THE TWENTY-SECOND YEARBOOK

OF THE  
NATIONAL SOCIETY FOR THE STUDY  
OF EDUCATION

## PART II THE SOCIAL STUDIES IN THE ELEMENTARY AND SECONDARY SCHOOL

PREPARED UNDER THE DIRECTION OF HAROLD O. RUGG

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*Edited by*  
GUY MONTROSE WHIPPLE

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## EDITOR'S PREFACE

The idea of producing a *Yearbook* upon the "Social Studies" was first broached in February, 1922, but it was not until October that a systematic effort was made to canvass the possibilities of securing material, and not until November that a definite decision was reached to undertake publication in 1923. On this account, the assembling of the material of this Part II of the *Twenty-Second Yearbook* has of necessity been much hurried, and some features that were originally contemplated have of necessity been omitted. It is hoped that members of the Society will be charitable toward minor inadequacies of presentation or editorial slips, if such there be, in view of the very great significance of the topic under discussion.

The writers of these chapters realize that they are presenting pioneer work and that their point of view has yet to gain universal, or even general acceptance among curriculum-makers and textbook writers. But they are convinced that they are on the right track and that the innovations they propose in methods of collecting, organizing, and presenting material in the field of the social studies should challenge the critical attention of our readers.

This *Yearbook*, it is felt, therefore, represents a satisfying continuation of the policy of the Society to organize and present to its members the newest and the best thought on the educational problems of the day.

GUY M. WHIPPLE

## FOREWORD

Periodically, in the progress of a dynamic society, the school curriculum needs inventory and readjustment. The curriculum, being a conservative agency, tends to lag far behind the society for which it is held to be preparatory. Rarely does it anticipate social needs; seldom does it serve as a competent agency for social improvement.

Current methods of changing the curriculum are slow and wasteful because they rely upon suggestions of individual teachers, meager textbook revisions, and committee reports. Such methods are indeed largely responsible for the hiatus between the curriculum and society. A more scientific procedure is possible: the systematic inventory of current practices and theories, the critical construction of hypotheses on the basis of it, and the use of objective analysis and experiment. This is the procedure that the makers of this Yearbook aspire to approximate.

Since inventory and evaluation is the first need, Section I presents an analysis of the current practices. It details the way in which social science curricula came to be what they are; it sketches needed changes in the social sciences; and it points out strategic points at which to begin reorganization.

Section II presents a number of definite illustrations of proposed reorganizations. Although constructed independently, these new types of curricula present impressive agreements in general point of view. For example, courses are developing in the direction of "general social sciences"; the junior high school has proved to be a promising first point of attack; the curriculum must prepare adequately for life; it must substitute pupil participation in activities for information about them.

To affect changes that shall have definite guarantees of permanent progress, the methods of the laboratory must supplant those of the arm-chair. Curriculum-making must become scientific. Prog-

ress in the use of more objective methods is illustrated by the chapters of Section III.

Finally much critical appraisement of proposed reorganizations is desired. Widespread debate of alternative schemes will advance progressive thinking and secure the general adoption of new proposals of superior value. Chapter 17 opens the discussion of the evaluation of current practices and of the proposals for reorganization outlined in the foregoing chapters.

HAROLD RUGG

# SECTION I.—THE SITUATION AND THE NEED

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## CHAPTER I

### DO THE SOCIAL STUDIES PREPARE PUPILS ADEQUATELY FOR LIFE ACTIVITIES?

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HAROLD RUGG

The Lincoln School of Teachers College

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In our schools upwards of twenty million children between the ages of 6 and 17 are preparing to meet the difficulties of industrial, social, and political life. Those difficulties are becoming increasingly great—in recent years they have brought about what almost amounts to an *impasse* in citizenship. The *impasse* has been frequently revealed by indifference to matters of public concern and by lack of trained intelligence on the part of the rank and file of our people to deal with their collective affairs. It appears to be very difficult, if not impossible, to secure an intelligent popular judgment on an industrial or political issue. In politics, for example, we do not weigh values; we vote bond issues. Predispositions caused by party affiliations and ancestral prejudices determine our reaction to the question of revising the tariff upward. The plumber who repairs my furnace, and my neighbor, the coal company owner across the street, respond to questions of wages, hours, or ownership of utilities on exactly the same bases—those of impulse and predisposition. Seldom are the facts of such situations reviewed, and rarely are actions upon them determined by deliberative judgment. Even the teacher is disposed to adopt or reject proposed educational reforms—the junior high school, supervised study, correlation, the project method, credit-for-quality, the Gary plan, the Dalton plan, or what not—without having really considered their implications.

Is it not clear that the vast majority of our people rarely deliberate? Is it not equally clear that critical judgment, instead of impulse, must be the basis upon which our social and political



decisions are made? Human conduct is so completely determined by these powerful tendencies to impulsive action, however, that almost insurmountable obstacles stand in the way of any agencies which are committed to the task of bringing such reform about.

#### THE RESPONSIBILITY AND OPPORTUNITY OF THE SOCIAL STUDIES

These brief comments—merely captions for a full discussion of the gravity of the present situation—should throw into bold relief the task of the public school, and especially of those in it who are responsible for the social studies. It is to the curriculum of the social studies that we must look to bring our millions of growing youth into contact with the insistent problems of to-day. It is through social study that children can be given a complete acquaintance with accepted modes of living. Through it they can be brought to a sympathetic understanding of the conditions and problems of other peoples and how their present difficulties came about. Through participation in community and citizenship activities, children can develop the habit of helping to decide important issues of group life. Through the social sciences, they can learn to respect the alarming symptoms of break-down in city life and can have practice in thinking out practicable solutions. Of the crucial problems of industry and business, of credit, and of the artificial inflation of our standards of living, they can get some glimpse. Along with their growing respect for the achievements of our people in the mechanical conquest of a great continent, they can acquire a proper perspective of the retarded spiritual and cultural growth that has accompanied them. Knowledge about the issues of contemporary life and how they came to be what they are could be translated into tendencies to act intelligently upon them, provided the machinery of the social studies is properly organized.

Now this is in brief what children *could* get through the social studies. The question is: do they get it?

Careful study of the matter leads to but one conclusion: they do not. Neither in the content of materials nor in opportunity for practice in meeting the problems of social, industrial, and political life is the school fulfilling its obligations. In two particulars are

the social studies in need of definite change; first, in the character of the material which they set before children, and second, in the provision for first-hand participation in individual and group activities. Our children need not one, but many years of practice in reading, mulling over, and exchanging ideas about the most pertinent matters of industrial, social, and political life. Only those who have been trained through five, ten, twelve years of practice in deliberation will tend to use critical judgment about contemporary problems.

Adequate information, then, and practice in using it, both essentials of efficient social action in a democracy, are clearly desiderata for social science courses. The charge is that for neither of these is sufficient provision made under the existing scheme. So fundamental is this indictment that from this point I shall take up the needed changes in considerable detail.

First the charge that under the present scheme it is very difficult, if not impossible, for pupils to become intelligent and vigorous citizens, with the ability and inclination to decide issues from adequate information.<sup>1</sup>

#### WHAT IS THE PRESENT CONTENT OF THE SOCIAL SCIENCE CURRICULUM?

The reader will find in the Appendix a brief statistical summary of the present content of social science courses.

It is of first importance to review the facts of present courses in history and geography, routine though it be. It is only from the school study of these subjects, as at present organized and taught, that at least 60 percent of our people receive definite

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<sup>1</sup>May I interject the comment, in passing, that my discussion is based on the definite hypothesis that the rank and file of our people have sufficient intellectual capacity to organize machinery to carry out their collective will effectively. I make this hypothesis deliberately, after dealing for some years with the facts of "abstract intelligence" and of educational and mental measurement. *The point of view amounts to saying that a person with an I.Q. of, say, 100 can, if exposed to nine or ten years of rigorous practice in thinking, develop tendencies of deliberation which he will carry on through adult life.* But the crux of this point of view is in the phrase "*exposed to nine or ten years of rigorous practice in thinking.*" It is especially to the question of whether pupils are "exposed" under the present order that we here address ourselves.

preparation for participation in the group activities of life. History and geography on this account occupy a strategic place in the curriculum. Chapter V shows how they have arrived at their present position and how history especially has come to deal more and more with matters of moment to our citizens.

1. *History.* At the present time "history" is taught from the fourth school grade through the last year of the high school. In many school systems there are gaps of a year or more in the high school in which pupils are not required to study history. In general, however, children come into contact with this material in four or five thirty-minute exercises each week during six or seven school years.

In Grades I to IV in the typical public school, the instruction is primarily oral and consists of hero stories, stories of Indians, and of other forms of primitive life. Reading of stories of this type is also done to some extent. In addition to such material, most primary schools build up instruction around a few great holidays—Thanksgiving, Christmas, Lincoln's Birthday, Washington's Birthday, and Memorial Day. In Grade V the attempt is made to give a somewhat more sequential treatment of United States history from the Revolutionary War to the Civil War; the instruction is still organized around the lives of historical personages.

History in Grades VI, VII, VIII, and IX has become a very formal matter. Ancient times, mediaeval developments in Europe, and the 14th and 15th century European background of the periods of the discovery and colonization of America are presented in a rigidly chronological way. In Grades VII and VIII the political, governmental, and military features of American history are methodically mastered. In the ninth year, for more than a generation public schools have devoted their instruction to an intensive analytical study of ancient history—the oriental nations, Greece, Rome, and the Dark Ages. (I shall comment later on the improvements that have been made recently in the content of high-school courses.)

What do children get from these four years of intensive historical study at from 11 to 15 years of age? They learn countless facts and details about the political and militaristic developments

of the United States and of ancient and mediaeval times. They deal constantly with matters which affect government and national relations with other countries. They canvass minutely the rise and fall of kings, and the policies of prime ministers. In many localities they are still expected to learn the details of military campaigns, the minutiae of battles, and the tabulated provisions of treaties of peace.

The history that children study is thus obviously international, legalistic, and militaristic. It deals with the growth of our nation as a legal and political organization. For the most part it has ignored the social, industrial, and intellectual aspects of its growth.

2. *Geography.* Paralleling the historical material is a body of facts which for two generations has been called "geography." In the primary school geography assumes the task of acquainting the pupil with his material environment. In a thoroughly informal and, in the main, concrete way, children in the first three or four grades learn the meaning of the earth and its formation, the facts of distance, direction, weather, seasons, and the like. Teachers have discovered meaningful ways of developing conceptions of child life in other lands through oral stories, some dramatization, and, from the third grade up, by readings from informal books.

But, from the fifth grade on, "Geography" becomes a formidable affair—a typical "school subject." Textbooks ("Book I" and "Book II") are used commonly from the fifth through the eighth grade. The materials are organized by continents, by countries, and by regional divisions. Children canvass systematically all the physical features of such land divisions, but rarely have the materials been organized so as to aid them definitely in either remembering them or in using them in the solution of problems later on. Countless facts are learned about states and their boundaries, their populations, and capitals; chief cities, their location, industries; and farm products. Lists of products are memorized in precise connection with the cities or regions from which they come. Similarly, mountain systems, river systems, and facts of longitude and latitude are learned by rote.

Veritable encyclopedias are these geography books with which we teach children about the important physical, economic, and



social surroundings in which they find themselves. But tests have shown that children cannot and do not remember these facts; and studies of social demands show furthermore that there is no need to be able to remember most of them. Geographical textbooks of recent issue, for example, mention prominently more than 500 cities, with the presumption that teachers are going to have children master the important facts concerning them. Likewise, 50 to 60 river systems, more than two-thirds of them in other countries; and mountain ranges the same. One of the most serious phases of the whole affair is that the material deals so largely with other continents than our own and with foreign countries, with a multiplicity of detail that is practically as great as in the study of our own nation. In other words, the geography textbooks try to cover too much territory.

3. *Civics*. So much for the present scope of history and geography. What about the third of the social sciences, civics? Students a generation ago were studying in one of the high-school years a subject called "The Constitution." This doubtless consisted of a precise analysis of the structure of government, with special emphasis on the "Constitution." The specific provisions of the latter, each of us, I am sure, learned by heart. Until recent years, the structure of our national, state, county, and local governments has occupied the foreground of our "civics" discussions in schools. We have allowed children to see the governmental engine and to study its parts, but only occasionally have we let them observe it in action.

Very striking advances, however, have recently been made; "Community Civics" has entered the school. The title implies that civic affairs, not merely the structure of government, are to be examined by the pupils. A widespread effort of the past ten years has produced scores of new "community civics" textbooks for our schools. Most of these have been adapted for the upper years of the high school, but an occasional book has been designed to aid the intermediate grades—the fourth, fifth, and sixth and the junior high school. These innovations have associated the study of various elements of community welfare with the study of the mechanics of government. Hence, through this new material, pupils in



the senior high school are now given paragraphs relating to conditions in our cities. They read about how cities are planned and how communities develop. Important elements, like transportation and communication, water supply, police and fire protection, health, and the conservation of resources are beginning to appear in these high-school textbooks.

We should remember, however, that few of such innovations have reached the elementary or junior-high schools. We still drill children through the history of the making of the Constitution, the text of it, and the amendments to it; we teach them the powers of the Federal government; descriptions of the presidency; the powers of Congress; the composition of Federal departments; the duties of Federal courts. The same kind of thing is taught with respect to state and local governments. Now and then a timid reference is made to new forms of government; the commission form of city government, and the city manager plan are discussed, together with the Initiative, Recall, and Referendum. In all this our habit is to take the machine to pieces, remembering the location of parts, but never to speculate as to how they work in the whole or whether the whole might possibly be made to work better.

Likewise in the more progressive textbooks, brief references are now made to developments in the organization of industry and business. Social problems are occasionally discussed, such as the protection of the poor, crime, marriage and divorce, immigration, defectives in society, slums, housing problems, the negro problem, etc. But altogether these items do not as yet form any very integral part of the whole textual content, nor are they presented in such fashion that students are forced to do constructive thinking upon them.

#### RECENT IMPROVEMENTS IN THE CHARACTER OF READING COURSES OFFERED IN THE HIGH SCHOOL

What has just been said should not be permitted to cloud our perspective of recent accomplishments in the senior high school. The ten-year campaign for new material in the high-school curriculum, led by workers like Mr. Dunn and Mr. Judd, has already brought sharp changes and suggestive indications of new tenden-

cies. Turn to Mr. Davis's table (Appendix) and note the striking results of this movement. Out of 1180 high schools canvassed in the North Central area, 1148 now give courses in "community civics." The movement for "social studies" to replace compartment-like courses in history, civil government, and geography has made definite strides. The high school at least now recognizes that pupils should read and discuss descriptions of community life.

There are three distressing limitations that we should keep in mind, however. First, this course in community civics is only a half-year course; we have gone so far as to concede to the discussion of current affairs, one-eighth of the established four-year time allotment for history (Ancient, European, English, and American). It is obvious that little can be done in this short time. More of that in a moment. For the time being, we can be thankful for our accomplishment in forcing a half year of "community life" into the history curriculum.

Second, 85 percent of the schools bar children of the grades below the eleventh from the opportunity to take these new types of courses. For them, "history and geography" must suffice. How far they suffice we shall inquire into presently. The fact is that two-thirds of our "standardized" high schools reserve these courses for the very last year of the school, the twelfth grade. By this method we permit not more than one-fifth of our children to come into contact with these discussions of current living, for the other four-fifths leave the school before that time.

Third, these courses are still elective. This means that by no means all of those students who remain to the last two years of the high school take them. Now if these community civics courses were upstanding treatments of the problems of contemporary life, and on that account demanded as much mental maturity as the school scheme could provide, then there would be reason behind this postponement of such courses until the last school year. But this is not the case. They are brief descriptions of conditions in city, town, and country, and as such they belong to a far lower grade. In the few schools where they are given a fair show they are handled effectively by pupils in the lower years of the *junior* high school—that is, in the seventh and eighth as well as the ninth

grade. About seven percent of the North Central high schools now offer them in the ninth grade. Miss Colloton's tables show, however, that little or no systematic social science instruction is given beyond conventional history and geography in the seventh and eighth grades.

The lodging of "community civics" in the eleventh and twelfth grades represents only a part of the process of putting new materials into the high-school curriculum. Two other courses which formerly have been regarded as useful only to the college are crowding into the eleventh and twelfth years—economics and sociology. About fifteen percent of our schools are offering optional courses in these subjects. Carried over from the college, they are truly of the college. The texts used (see Mr. Davis's table) cover the same scope and are made in the same form as those used in the college. Critical examination of them raises grave doubts as to their adaptability to the high school, or to the college for that matter.

What is happening is very clear indeed: the new social sciences are coming into the elementary and secondary curriculum along exactly the same route that mathematics and science travelled before them. They are timorously working their way down from the college, first appearing in the senior year of the high school, cropping out in lower years where administrators are more far-sighted in their trial of new materials; and finally, after two or three generations of committee reports and unrecorded trial and error, the prospects are that they may eventually find lodgment at some convenient level of the graded scheme. It took fifty years, for instance, for algebra to move down from the college curriculum and find an acceptable compartment in the ninth grade. And now the scientific movement is disturbing the complacency of the defenders of this grade location by showing that some of its processes should be, and can be, effectively employed as part of the mathematics in the seventh school year; other processes can be employed in the eighth year.

This empirical method of grade placement of curriculum materials is very sure, but very wasteful. Fifty years could have been cut to five in the case of algebra if scientific and systematic experiments had been resorted to instead of unrecorded and haphazard

"experience." All that was needed was to try the same materials in several different grades in similar schools at the same time, measure the results obtained, and carry on an intensive analysis of learning. To-day the science of education is equipped to set up such an experiment. Furthermore, it is obligated to do it with each of the chief divisions of our curriculum materials. The besetting sin of current methods of grade placement of subject matter has been this very practice of "trying" this course or "trying" that, with nothing to show for it after an entire generation but the vague unrecorded judgments of teachers, that "it worked in my eighth grade" or "it positively will not go in the ninth year."

In summary, then, while there are important gains in the new types of curriculum materials that are appearing in progressive high schools, the fact remains that preparation for the problems of neighborhood, community, and national life is principally provided through the study of United States, English, European, and ancient history. Even "commercial geography" and "industrial history" with their rich factual materials are still regarded as "vocational," and only a relatively small proportion of the whole high-school student body deals with these important materials at all.

#### IMPORTANT QUESTIONS ABOUT THE PRESENT CURRICULUM IN HISTORY, GEOGRAPHY, AND CIVICS

These running comments on the outline of the social science curriculum in our schools serve as an introduction to six important questions that should be answered concerning it.

##### 1. Does The Present Curriculum Treat Adequately the Pressing Industrial, Social, and Political Problems of the Day?

It does not. One can arrive at no other answer if he analyzes carefully and impartially the materials of current courses.

I have recently canvassed four of the most commonly used history textbooks to determine the extent to which the pressing problems of the day are discussed. A few illustrative facts are given in the tables in Chapter XV.<sup>2</sup> These are thoroughly typical.

<sup>2</sup>The details on investigations of current and proposed courses will be published in 1923 and 1924 as a series of social science monographs.



They are supplied here only to show the kind of evidence concerning the present curriculum which impelled my colleagues and myself to commit ourselves to the preparation of new materials.

Specifically, we tabulated each paragraph of material in some 200 of the most authoritative books that dealt with the outstandingly important and insistent matters of contemporary life. From the eleven topics under which the material fell came our complete list of some 300 problems, compiled as described in Chapter XV. That these problems are crucial in our lives to-day cannot be doubted. Curriculum materials in the social sciences should prepare pupils definitely for an understanding of them.

Who can question that the "disappearance of free land and the decline in the number of owners" is an important issue in American life? *Yet in no one of these four recent and widely used textbooks is this problem definitely discussed!* Neither do children in their several years of study of American history meet critical discussions of the evolution of land policies in the United States. Only one book out of four mentions them; and its discussion is a conspicuous exception. It devotes two and three-fourths pages to the evils of land monopoly, one-half page to wasteful agricultural methods, and one-half page to mismanagement of timber and mineral lands. The other three books *totally ignore* the dozen crucial problems of wise ownership and development of minerals, forest land, and water power.

This does not mean that the texts make no historical references to land and land policies. They all do that, but in a thoroughly legalistic manner, without in any way relating the history of the matter and its current phase. A page and a half to the Survey Act of 1785 and the Ordinance of 1787; a half page reference to the sale of western land; three-quarters of a page to policies of land disposal, a half page to "price of land reduced 1821," one page to land surveys in the Northwest—so the recital runs. The discussions are brief, text-like, chiefly narration of legislative acts. Occasionally, only occasionally, one of the authors comes close to considering the evolution of some vital matter. In eight lines in one book the *fact* is stated that the free land of the West was largely taken up by 1870-1890. Imagine a student 13 to 17 years



of age getting the significance of the disappearance of free land, the growth of cities with all the accompanying problems, from any such presentation as that. It is absurd, the reader will say. It *is* absurd indeed. And the distressing thing about it is that it is typical. Our historians do not give children definite historical discussions of crucial matters.

Take other typical illustrations from these books: the distribution of goods, and problems of the market; for example, the effect of the way in which our railroads, canals, etc., are owned on the efficiency with which agricultural and industrial products are marketed. A plain statement can be made. The history of such matters is not taken up in textbooks. Current materials practically ignore the "market" development of the past generation. Where do children learn about co-operative movements among farmers; the control of grain elevators; rates, credit facilities for marketing agricultural products? Nowhere in these textbooks. The only references made to such issues are found in a two-line statement in one book to the effect that a farm loan system is being set up by the government, and a quarter-page statement in another that the Federal Reserve System was developed "to aid small borrowers, especially in the country." And these four books are undoubtedly the best we give our children to read!

What about the history of the labor movement? One book contains just one half page on labor unions and factory laws and one page on employers' associations and welfare work. The best of the four gives a total of five pages to the history of the movement for consideration of hours, wages, profits, and control. These pages are not a continuous treatment of this matter but are scattered in brief bits in several parts of the text. A third book devotes a total of one and three-fourths pages to all aspects of the labor movement, while a fourth gives three and three-fourths pages.

We need not multiply illustrations of the way in which our school histories fail to supply our children with adequate treatments of contemporary problems or their historical development. Precisely the same conclusions can be drawn for such problems as the following: "On what basis shall we admit immigrants to America?", "How can we assimilate immigrants into American

industry so that at the earliest possible moment they can become economically independent?'' or any one of ten other immigration problems. From the field of the social problems, take that of adult illiteracy or any one of fifteen other problems that deal with education and the formation of public opinion. Should young Americans be given an appreciation of America's danger in not developing a spiritual and artistic capacity commensurate with her remarkable mechanical and business achievements? It will be difficult—I personally believe impossible—for them to get it from the contact that they now have with such matters in current courses.

What about problems of the American city? Is it not wise to give children years of contact with such general matters as these: "Problem of how to give to community life, both urban and rural, the physical attractiveness and the intimate neighborhood relations which characterize the American suburban community," "Problem in large cities of satisfactorily housing the industrial worker near his place of work," or any one of twelve or more other problems of the city? Fifty million people in the United States live in cities. Crucial problems of living together to-day revolve largely around affairs of city life. Yet it is very difficult for pupils in our schools to obtain from the material of the social subjects clear notions of what these problems are, to say nothing of any real practice in debating them.

## 2. Are Problems of Government Adequately Treated by the Histories and Civics Books Which Pay Chief Attention to Political Affairs?

We tried to find a continuous and critical treatment of different ways of financing the local, state, and national governments. In only one of the four new histories examined was there any discussion that could be interpreted as critical; that one was a page and a half of discursive presentation of arguments on the tariff, nine lines describing the Payne-Aldrich tariff, three lines on the Underwood tariff. It was the same story with respect to the history of governmental efforts to supply credit facilities. One of the history texts gives a total of one page to a statement of legislation about federal banks; a second one, one and one-half pages; the

third, one-fourth page to the mint, and the national bank; the fourth, one and three-fourths pages.

In not one of the books could we find a discussion of the history of prices and the cost of living. True enough, if the pupils remain in school to the eleventh or twelfth grade and elect a course in economics, they might come upon some reference to the problem of prices and cost of living. Most likely they would not. But less than 30 percent of our pupils stay in school until the eleventh and twelfth grades. Where, then, do our makers of curricula expect children to become intelligent about matters of this type?

Is it not perfectly clear from the instances we have discussed that pupils cannot obtain a grasp of the critical problems of contemporary life from current school histories? Yet it is the "school history" upon which we now rely for our preparation for citizenship.

If space permitted, the same situation could be shown to be true of European and English history upon which we depend in the high school to give children an acquaintance with America's problems in dealing with other countries. Our analysis of this matter will be published in monographs later on.

### 3. Do the New School Histories Pay More Attention to Industrial and Social Matters than the Older Ones Did?

They do. For a generation there have been frequent demands that our school histories deal more definitely with industrial and social matters. Children were being educated for a world which was primarily industrial, yet the histories dealt largely with political and militaristic affairs. Note how clearly this is shown by Table XII, Appendix. Eighty-two percent of the material in eight histories published before 1860 was devoted to political and military matters. Of this more than half was militaristic.

Under the fire of educational reform the emphasis on military affairs has been remarkably lessened, at least in our better books. How clearly the contrast appears in Table XIII, Appendix. Eight commonly used American histories now devote on the average less than 15 percent of their space to military affairs. Histories are coming from the press in which the authors (specialists in content

as they are) have deliberately excluded practically all of the details of wars.

As the interest in military content has lessened, that in economic and social activity material has sharply increased. Children who studied history before 1860 rarely had to do with such matters at all. To-day more than one third of the content of our school books deals with economic and social aspects of history.

Real gains have been made in this direction by those who wish the school curriculum to become more directly an agency for social regeneration. But paralleling this increased emphasis on industrial and social life there has been a marked tendency among the new historians to use much of the space formerly occupied by "militarism" to enlarge the discussions of political matters. The reason for this is clear. Most of our writers of school histories are still college professors of history. Being that, they are more interested in government than they are in industry and community life. The result is that even the newest histories devote on the average almost exactly half the space to political life. (See Table XIII, Appendix).

But our studies also show that the leaven is working from the lower grades upward. Whereas 60 percent of the content of high-school books is political, only 40 percent of the seventh and eighth-grade books is political. Of course, we have no real criterion as yet for telling what the true proportions should be. When the scientific investigations of content now under way in various parts of the country are completed, we shall be able to evaluate much more soundly the emphasis that should be placed upon the different aspects of life. In the meantime, as a tentative judgment based on our investigation of contemporary problems, I would say that not more than 30 percent of the total school time devoted to social studies should be given to political and militaristic matters. I anticipate that our further studies will reduce rather than increase this proportion.

#### 4. Do Social Science Textbooks Furnish Backgrounds Rich Enough for Constructive Interpretation?

Are the reading materials of history, civics, and geography full enough in historical background so that children can live over the



experiences which are demanded for a real understanding of the important features of present life? Not more than a small proportion of children can actually experience these social, industrial, and political happenings and then only in diminutive form. So if they are to secure an appreciation of the world they live in and how it came to be what it is, they must depend on reading about it and discussing it. It is most pertinent, therefore, to raise questions concerning the wealth of detail in our current materials.

A careful analysis of our textbooks leaves no room for doubt as to the answer to our inquiry. *The textbooks do not furnish enough detail* to give students a real depth of feeling and comprehension for the matters under consideration.

We are confronted by one outstanding issue: Shall our curriculum materials consist of very full treatments of a restricted number of fundamental matters, or of very brief treatments of a wide range of subjects? At present they are of the latter kind. Social science textbooks are veritable encyclopedias. They are reference books. They devote a half page to this and ten lines to that. The Erie Canal gets eight lines; the Tariff of 1816, 12 lines; the Homestead Act, 6 lines. I have before me as I write several typical textbooks and detailed statistical tabulations of their contents. The discovery and development of our great mineral resources, for example, is treated in a half page in five out of eight of the most commonly used ones. (See Table XIV, Appendix.) How can children hope to get a feeling for the contribution of mineral resources to our present problems? How can they understand America's present difficulties in assimilating fourteen millions of foreign born, when all they read about it is a paragraph on the coming of the Irish and Germans between 1845 and 1855, the passage of the Immigration Law of 1882, or as in another book, a paragraph on the new "three percent law" of 1921. There is but one answer; they cannot. They do not get a feeling for these matters which will lead to a real understanding of them or to an inclination to act upon their knowledge.

Textbook makers have been restricted to approximately a stipulated number of pages. To exceed that number would result in a text so expensive as to prohibit its use in the schools. On the other



hand, school administrators and teachers have been in large part responsible for the encyclopedism of school books, for they have demanded some discussion of *everything* in the field. And what the school people overlooked, Boards of Education, Chambers of Commerce, patriotic societies, or fraternal organizations have not failed to demand.

What could be the result of this method of making curriculum materials but an encyclopedia? The only *complete* book ever put together within a single cover is an encyclopedia. So histories, geographies, and civics books have attempted to tell *all* the story, mention *all* the cities (600 or more), treat *all* the elements of community life. And of course no one story or problem or topic has been or could be treated fully enough to give immature youth a true picture of it.

What is needed in place of the brief and isolated paragraphs we now give children to read? *A wealth of anecdote, narration, and description about a few worth-while matters.* Two changes appear to be imperative with respect to the content of the social science materials. Certainly the first step is the selection of topics for study which are of proved value to all people. We must then find ways of presenting these in the form of readings and activities so rich in human detail as to make the pupil's school experience as nearly as possible a replica of his later life experience. Confining our discussion for the time being to the reading materials, does this not mean that we must come to a much wider use of the episode, the anecdote, the story, than we have hitherto made? Three years of investigation of the matter have convinced me that we must.

The issue in so far as it touches history can be put in another way. Shall we supply children with an outline to read early in the grades, depending upon life experiences or "the teacher" to elaborate it, or shall we introduce our youth through all the lower and intermediate grades to many detailed examples of life, rounding up the threads into an outline in their more mature years? The present school histories which are used all the way from the seventh to the twelfth grades are *outlines*. To the children their brief paragraphs are nothing but topics and sub-topics. That text writ-

ters themselves recognize this is shown by their meticulous care to set out things to be memorized in center headings, side headings, italics, bold-faced headings, and marginal headings. These outlines would be valuable to pupils and teachers if used in a senior-high-school grade, say in a half year or a year's course which came after several years of detailed reading, discussion, and concrete activities.

In a later chapter there is a detailed illustration of new curriculum materials. We have tried to select a few pages which would convey as complete a picture as possible of new ways of presenting curriculum materials. Obviously it will not give the reader a complete feeling for what is done through the full scope of the materials themselves. The sample we have given, however, illustrates the use of the "episode," the need for which I have referred to. Notice that instead of telling pupils in a few lines that cities were crude affairs in 1845, we have quoted either eye-witness accounts or extracts from fiction which are true descriptions. Instead of merely telling them in so many words that it is difficult to Americanize the southeastern Europeans, we let them read a dozen or more *episodes* of actual Americanizing experiences. Any number of true stories can be collected from the immigration literature. A score of books which contain such accounts are available to the school which will put them in its library. Almost every city or town library will have some of them. But if it is difficult for school people to obtain the books giving the full accounts, they should *demand of textbook makers that these rich human episodes be incorporated in their texts*. Instead of being books of "texts" (how well named they are!) they must become real reading books. Our experience in preparing new materials proves to us conclusively that it is possible to collect and organize episodic material which will give pupils a deep and broad grasp of the topics discussed. *Only when school administrators and teachers decline to accept anything but rich reading material will text writers go to the trouble (it requires prodigious search in very well stocked libraries) and book publishers go to the expense of providing fuller readings.*

But in making the demand for a wealth of material, I do not mean to imply that it is only the human episode that we need to use. There is just as great a need to supply the pupil with quantitative facts in graphic and statistical form. School histories never graph their facts. Only rarely do they even present historical trends in statistical form. Perhaps the historians would not regard material presented in that form as history. If that is true, so much the worse for the historians! Psychologically, the feeling for development, growth, movement, can be set up very clearly indeed by striking graphs. And they are most effective and economical teaching devices. Graphs and statistical tables have been thought of as the property solely of the mathematics class. Let us make the fullest use of them in the social science class as well. Of course, the pupil must be taught to read and make graphs. Our experience has shown us that this is a simple matter even in the fourth and fifth grades.

Chapter XI provides concrete illustrations of what we have found to be a successful use of graphs. It also supplies examples of a more generous use of maps, which we are convinced must be resorted to by textbook makers. Maps which teach one or at most a few things are needed. *Furthermore, maps should be used in reading books,* and closely connected to the discussion of the point under consideration.

So much, then, for the need of the episode, the long story, and more graphic, statistical, and pictorial matter in social science materials. I have given but brief illustrations of the need and ways of satisfying it. A volume might well be written on it. The next issue is so closely related, however, that we will turn to it at once.

##### 5. Are Social Science Materials so Organized as to Give Thorough Practice in Deliberation?

They are not. Furthermore, it is difficult to believe that they even promote practice in deliberation. It is my confident judgment that much of the organization of current geography texts, for example, would inhibit thinking rather than encourage it. The charge is so serious that we should examine it carefully.

I have already commented on the universal propensity of human beings to act upon impulse. Unconsidered response is character-

istic of the man in the street. The responsibility of the social sciences for aborting this instinctive tendency has already been pointed out.

Now what is necessary in the organization of curriculum materials if this obligation is to be fulfilled? First and foremost, an arrangement by which pupils will be confronted constantly with definite issues, obstacles which block the smooth passage of thought. Not the learning of *texts*, but the solving of *problems* is what we need. Our materials must be *organized around issues*, problems—unanswered questions which the pupil recognizes as important and which he really strives to unravel.

For one thing it is the very descriptive, paragraphic, encyclopedic organization to which I have referred that makes such learning at the present time impossible. *Textbooks cannot be compilations of "texts" and at the same time provide the data for problem-solving.* For the pupil to think, he first must be mentally blocked and thwarted until he is obsessed with a desire to clear up the matter; he must also have at hand the data, the facts on all sides of the issue, before he can think constructively on it; and third, he must be practiced in deliberation on situations that are somewhat similar.

The following conversation was overheard recently between two ninth-grade boys. A new book under one boy's arm caused the other to ask what it was. The title was given; the book was one used in a ninth-grade class in the school.

"Do you like it?" was asked.

"No, don't believe I do."

"Why not?"

"All questions and no answers," was the laconic reply.

The makers of that book are more surely treading the right path than most of our curriculum makers. Their materials did not consist altogether of questions. Rather voluminous data were given the pupils, too. But the boy who made the remark and his friends in the class were constantly faced with questions which they had to "think" about; they were supplied facts from which to find the answers, directed also to search other sources for additional facts; but they were compelled to do real thinking, draw



conclusions, make inferences, unravel tangles, and surmount every obstacle that stood in their way. Teachers from time out of mind have set this very goal as their chief intellectual aim.<sup>3</sup>

To do it with the present materials, under the hampering conditions of heavy teaching programs, demands almost a genius for a teacher. Histories are straight chronological narratives, arranged by "periods," with questions set at the ends of chapters. Any one page of any commonly used geography contains a score or more of important facts, but they are almost never organized about a problem or presented in such factual form that a pupil will be stimulated to try to overcome the difficulties.

There are given in Chapter XI some crude examples of attempts to do this very thing. I am presenting them with much hesitation, as they are purely tentative and experimental; they are being experimented upon now in printed form for the first time.

The reply of the textbook maker may be that the job of organizing the material so as to stimulate the pupil to think is the teacher's. The answer to this, of course, is that there is no reason why the materials should be set so as to *hamper* the teacher in doing this; and every reason in the world, on the other hand, for aiding him by providing a thought-provoking, rich, and well-arranged organization.

6. Does the Present Division of Social Science Materials into the Separate Subjects of History, Geography, Civics, and Economics, Aid or Hamper the Teacher and the Pupil?

Personally, I am confident that the present organization of social science materials hampers the teacher, but I have no scientific basis for such an answer. We have found abundant arguments for the need of a unified, continuous social science curriculum from our study of the way in which materials from the different subjects are demanded for a really successful lesson. How, for example, can one teach children the history of transportation, the history of our westward movement, of the settling of our country, and the exploitation of its great natural resources without constantly

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<sup>3</sup>L. V. Koos's investigation and other studies of the aims of teaching the social sciences make this very clear.



calling up facts of topography, location, and the like, which for several generations have been called "geography?" It can't be done. Furthermore, good teachers do not try to do it. Skilled teachers have always taken their material from wherever it happened to be found, irrespective of how it was catalogued or pigeonholed. How can a pupil obtain a really clear notion of the way thirty-three million immigrants came to this country between 1820 and 1920 without having the facts of the economics of Ireland in earlier decades, of the political relations of Ireland and England, of the economic and political history of Germany, foreign living conditions, the status of agriculture and industry in both northern and southeastern Europe? But the accounts which are necessary to present any of these matters make use of history—political, economic, and social—of geography, of international relations. And clear handling of such important topics forces the teacher to incorporate also materials from economics, political science, sociology.

At this point just one criterion, it seems to me, should guide the curriculum maker. He should assemble around definite problems and issues those illustrative materials that the mind imperatively needs to deal with the matter in hand. He should gather these materials from whatever school "subject" tradition may have housed them in. And he should put them together in such natural relationships that it will be possible for the pupil to call to his aid at any moment the data *naturally* needed at that moment to answer his pressing question.

The issue is all-important. It deserves the fullest consideration—a detailed discussion to which neither this chapter nor the whole *Yearbook* can do justice. The illustrations here given are all too few, I fear, to be as convincing as we feel they should be. They are typical, however, of scores of others which the social science worker can himself call to mind.

This brings us to a further indictment against the social science courses as taught at present.

## 7. What Dominates Our Social Science Instruction: Reading about Life or Participation in Life Activities?

Is there any doubt about the answer to this question? If there is, Mr. Davis's table will clear it up.<sup>4</sup> The social science curriculum is primarily a reading curriculum. Reading and answering teachers' questions about the reading engages nearly all the time of our elementary and high-school students. Our schools are attempting to fit pupils for participation in social, industrial, and political activities by letting them read about practical situations, rather than by having them practice by taking part in them throughout the years of their preparation.

The best fourth or fifth of our high schools have in recent years come to make some provision for learning through active participation. These opportunities range all the way from arousing "citizenship sentiments" by means of weekly assembly talks to excursions to certain political and industrial institutions or to "practicing" citizenship by means of scout organizations, debating clubs, and student self-governing agencies. Eighty percent of the best public high schools have debating clubs. We do not know how many pupils take part in the work, certainly not more than 20 percent, probably a far smaller proportion than that. Debating in regular school classes is rare, although it affords one of the best opportunities for the interplay of minds and training in deliberation and the handling of evidence that there is.

In about a fourth of our standard high schools students get practice in carrying on their own governing organizations. Half of the schools hold mock elections. About half carry on scouting and thrift organizations. Slightly more than half conduct a school paper. To the latter a negligible percentage of all students actively contribute, however. While about a third of our high schools offer dramatics, only a small fraction participate. And there is no knowing to what extent the dramatic work contributes to an appreciation of social, economic, and political matters. The influence is probably only incidental.

It is clear, then, that our social sciences are dominated by reading courses which stress the acquisition of information *about* life. The schools are following the easiest way, the path of least resist-

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<sup>4</sup>Mr. Davis' table, quoted in the Appendix details the facts for 1164 high schools in the North Central Association.

ance. School-book writers have brought together compactly in semester and full-year texts much information *about* our government and how it developed, descriptions of certain aspects of community life, of industry, and business. Children, organized as groups, read definite assignments from these texts—in the main *only* from these—and answer teachers' questions on the reading. *Little opportunity is provided in the rank and file of our schools for pupils themselves to lead in organizing and carrying on the group discussions.*

The point of all this is that American schools have not yet learned how to provide *activities* by which most of the children are brought into first-hand contact with local, national, and world affairs of a social, industrial, and political nature. Undoubtedly matters *are* getting better. More and more schools *are* letting boys and girls mingle together in social groups, giving them practice in organizing themselves, and in learning to defend and refute points of view. *But the progress is slow if these recent surveys have it right.* Even on paper, an astonishingly small proportion of our pupils are given opportunities for *practice in citizenship.*

What theories is this practice based upon? No theories at all, I fear. The present practice wasn't born—it just grew. The practice implicitly assumes, however, that clear thinking and right conduct will issue from the mere acquiring of information. We know perfectly well that *clear thinking emanates only from continued practice in thinking and right conduct only from practice in right acting.* If any lesson at all is to be drawn from the statistics in the Appendix, it is that, while some school people are recognizing the importance of these principles and are acting upon them, the majority are not. The movement which is aimed at providing pupils with an opportunity to initiate and organize has affected only the best fourth of our administrators and teachers. The bulk of Mr. Davis's table deals with "giving information through" courses in civics, courses in economics, courses in sociology, courses in current events, courses in morals, manners, life problems, and the like.

At any rate, the present scheme of instruction is a teacher-leadership scheme. Pupils wait for their cues from the teacher—

they rarely initiate, organize, argue for or insist on points of view which they themselves have developed through inner drives of their own origination. We have pleaded long for the "spontaneous teacher." Our present concern in developing him tends, I fear, to obstruct the development of spontaneity in the pupil. It is this spontaneousness, initiated from within by overpowering interest, drive, urge (call it what you will), that we are not getting through our reading courses. And we can not hope to get it while we neglect activity. We must have activity in class groups within the school, provide informal extra-class activities for pupil participation, and make these such that the pupils will learn through them how to take part in their all-important out-of-school activities.

#### OTHER INSISTENT ISSUES IN SOCIAL SCIENCE CURRICULUM-MAKING

Although this discussion of needed changes has already exceeded its space, there remain unconsidered at least three other issues of importance. They can be commented upon very briefly.

The first one can be set up as follows: Shall historical backgrounds be broken up transversely into periods or shall they be divided longitudinally and the entire development of a particular problem, institution, or activity discussed without interruption? The present scheme of instruction in public schools breaks history up into "blocks," or periods, and discusses all the threads of development within one period before moving on to the next. Two difficulties result from the use of this method: first, the story tends to move very slowly indeed—the instruction is characterized by an analytical method and by the filling in of too much detail; second, the story never reaches the present and thus earlier times are not closely tied up to present-day matters as they should be. Hence it appears to be worth while to experiment with materials which have been constructed on the other basis, to discuss the history of a whole group of related problems together, to bring the account to date each time. An illustration is described in Chapter XI.

A second issue deals with another phase of the question, "How much of the history shall be taught at any one time?" It is this: Shall history be taught by a continuous account which fills in practically all of the details, or would it be better to use a scheme



of sharp contrasts which bring out a particular epoch sharply against another one, say the present period? Our public school courses employ the first one; but experimentation with the second gives promise of fruitful results. It makes the history move rapidly, while the first method makes it move very slowly indeed. And it makes an unfamiliar and remote situation stand out sharply and clearly against a more familiar and more recent one.

We should be very clear, however, that this proposal of sharp contrasts does not imply neglect of chronological arrangement. If ideas of sequence, continuity, and historical development are to be learned, pupils must study them in chronological order. The issue is *not* the chronological vs. the psychological (whatever the latter may be!). The issue underlying this whole discussion turns on the question of *how much of the detail of history is going to be told at any one time*. The new proposals suggest that much less than is embodied in current courses should be given.

There is a third and final issue which makes clear another aspect of the question of an excessive amount of detail in current materials. The full-chronological-block method of the present history arrangement and current methods of organizing geography lead to a very *diffuse* type of material. Matters to be comprehended as a whole are not tied up together in naturally related units. It is proposed, with illustrations in this *Yearbook*, that a definite "problem" organization be followed instead; it is believed that this will insure that such materials will be taught together as can most naturally be learned together. In this way nothing will be handled by the pupil that is not needed in answering definite questions.

The charges against the present order in the curriculum are now all before us. The issues have been brought into the open so that the proponents of things-as-they-are and the advocates of change can meet them squarely. On two general counts the present scheme is indicted—inadequate materials, and insufficient provision for pupil-activity. The defenders of the existing materials and their present organization now know exactly what they need to combat if they wish to take up the cudgels to perpetuate them.



The task of the *Yearbook* from this point on is to supply illustrations of the kinds of change that educational reform demands; likewise to show how they can be brought into general practice. Mr. Judd's chapter carries on the discussion by showing that the junior high school is the favorable point at which to introduce social studies into the school curriculum and he sketches the considerations that must be dealt with in doing it. Mr. Marshall outlines a proposed junior-high-school course and in the fifth chapter presents a detailed illustration of the kind of material it will contain. Then follow in succession six other examples of reorganized courses, together with such theoretical comment and discussion as their authors feel called upon to make.

Information is needed concerning the more objective methods by which the new curricula are being constructed. That is supplied by the material of Section III. Chapter IV tells how the present courses came to be what they are, thereby supplying historical evidence to enable us to evaluate the new methods against the old. With these materials in hand, we are ready for criticisms of the proposed changes. These we have in Mr. McMurry's chapter.

## CHAPTER II

### INTRODUCING SOCIAL STUDIES INTO THE SCHOOL CURRICULUM

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Any practical plan for inserting a new subject in the American school program will have to take account of the existing courses of study. The complaint is often heard when additions to the present curriculum are suggested that all of the available time and energy of pupils in the elementary schools are now consumed in an already overcrowded program. New subjects are referred for the most part to the high school or college because in these higher institutions there is greater flexibility owing to the elective system and also less necessity of careful organization of the materials of instruction since students are supposed to be mature enough to assimilate ideas even if they are somewhat abstractly presented. It was considerations such as these that brought it about in years past that civics in its various forms was thought of as a high-school subject.

The agitation of the last few years for a fuller treatment of social problems in the schools cannot, however, be satisfied by elective high-school courses on social institutions. The agitation grows out of a conviction that all pupils must be made aware of the problems of social life. This means that there must be devised some way of teaching elementary-school pupils some aspects of social science.

A second difficulty appears when the attempt is made to go down into the elementary schools with lessons on social phenomena. Pupils do not have a broad enough experience to make it possible for them to comprehend society. Society is an intangible entity. Its organization cannot readily be depicted in maps and its operations cannot be reduced to simple formulas.

A third difficulty, which may be referred to as an administrative obstacle, is perhaps more serious than either of the first two mentioned. Teachers are not prepared to teach social studies. Most of them are inexperienced girls who have never seen industry or government in its larger aspects and are wholly unaware of the problems of social organization. What is more, these teachers are not disposed to bestir themselves to add to the knowledge which they now have of the conventional school subjects any information on the new problems which a course in social studies would have to attack. If teachers could not hide behind the plea of a crowded curriculum and of pupil immaturity, they would probably come forward frankly with the statement that they are not interested in social studies.

Let us consider the three difficulties referred to and see what solutions can be suggested.

First, as to finding a place in the program, the present happens to be a very opportune time for the discussion to come up. The country is passing through a reconstruction of its school system which is directly traceable to the conviction that elementary schools have accomplished their primary purpose of teaching the rudimentary subjects by the end of the sixth grade. The time was when pupils went to school only a few weeks in the year; when school equipment was meager and teachers were without professional preparation for their work. At that time the rudimentary phases of reading, writing and arithmetic occupied the whole of the eight years of the elementary school. As the school opportunity of the individual pupil expanded, one subject after another was drawn into the program. First came geography, then history and literature, and finally prevocational and vocational courses of various types. The trend of all these additions has been in the direction of a better exposition of social life. The enrichment of the curriculum has now gone far enough so that in the later years of the elementary curriculum the rudimentary subjects have come to take a secondary place. The reading in the sixth, seventh, and eighth grades is no longer rudimentary practice in reading extracts from stories assembled in a reader; it has taken on the form of reference reading in the library. Arithmetic, which at first made

a brave effort to maintain its place in the program, has gradually given place to a study of applications of number to practical problems of the home, the store, and the shop. Applications of this fuller type have rendered less and less satisfactory the reviews which used to be offered in the upper grades as the devices for keeping arithmetic in its place.

No one can study the changes which have been going on in the elementary program without realizing that there is being opened a place for social studies in the upper grades of the elementary school. Indeed, social studies come as a relief to the superintendent who is making out his school program, because if these new materials were not available it would be a serious problem to determine how profitably to fill the time of upper-grade pupils.

It should be noted that this statement of the natural tendency of the upper grades to adopt a social program is made with full recognition of the qualifications which must be entered in view of the lack of knowledge and interest on the part of teachers. It is not asserted that social studies are to find their way readily and easily into the curriculum. The obstacles are great, but the way is opening as a result of the natural evolution of schools.

Furthermore, it is not intended, by the statements that have been made, to limit social studies to the upper grades. There can be no doubt that there is an urgent and altogether legitimate demand that little children in the lower grades be introduced to social ideas. This fuller realization of the social studies movement is, however, likely to wait until the experiment of introducing it into the upper grades has advanced much further than it has at the present time.

The first conclusion which seems justified by our discussion is that social studies can at this time be most easily inserted into the elementary program in the seventh and eighth grades.

The second problem, that of preparing social science material in proper form for school use is not an easy problem to solve. The example of the natural sciences which have for some years been in process of experimenting with a similar problem is illuminating. At the beginning of the nature-study movement, some twenty-five years ago, the facts which were to be presented to pupils were

chosen from the mature natural sciences wholly without regard to the pupils' powers of comprehension. In short, the natural sciences did not at first pay attention to the psychology of the school child. In the second place, the facts were often presented in unsystematic order, being drawn now from the physical sciences, now from the biological sciences, and sometimes from ordinary experience. The result was a complete failure of the early nature-study movement.

From this failure it is possible to derive two principles which will be of great service to the social studies if they will heed the example of the natural sciences. The first of these principles can be formulated as follows: the selection of materials for instruction must be **strictly in accordance** with the capacities of pupils. The second is that there must be a clear enunciation of those scientific relations which will make the pupil aware of the difference between facts and systematic comprehension. Put in other words, these principles may be formulated negatively by saying that social studies and nature-study cannot be absorbed by pupils in the form in which they appear in mature science, nor can they be absorbed by pupils if they are mere unsystematic, miscellaneous conglomerations of supposedly interesting items.

These abstract statements can be made concrete as follows: Seventh and eighth-grade pupils are intensely interested in their own relations to society. They are interested in the tangible exhibitions of society at work in industry and in the conquest of nature. They are interested in persons and their doings. It is not opportune to try to carry pupils out of the range of their concrete thinking at this stage and to ask them to consider the details of governmental machinery. The structure of the federal government may be a matter for systematic thinking on the part of mature adults, but children want something much more vivid and personal and concrete.

Children of this age are on the threshold of adult life with its personal responsibilities and personal opportunities. If social studies are to appeal to them, there must be a formulation in terms appropriate to this outlook on personal adult life.



The second general principle stated in a foregoing paragraph is less likely to command instant acceptance than the first. Experience shows, however, beyond a possibility of doubt, that science will have to be systematic if it is to be a successful subject of instruction. It is not possible in view of the complexities of social life to set pupils wandering around among a miscellaneous collection of facts, leaving it to them to put these facts together in some coherent, understandable order.

This statement runs counter to what is being said these days in many quarters. We are being urged by some people to break down the whole structure of the school curriculum and to let pupils hunt up so-called 'projects' wherever they can find them. We are being told that if pupils carry through enough projects they will learn that the world is governed by systematic laws. They will discover for themselves what the race has been working out through long ages. The fallacy in such confidence in the efficacy of miscellaneous thinking is the fallacy of time. Perhaps children might rediscover science, but it is quite certain that they will not do so in a single life time, much less in a school life time. What children need, if they are to get in a short time what the race has evolved in a long time, is guidance in systematic thinking. They must have made clear to them the important relations around which they can group their experiences.

The argument of the foregoing paragraph is supported by the fact that every course of study which constitutes a part of the school curriculum has come to be a series of systematically coherent relations. The reason why arithmetic is a subject is that it singles out certain important types of relations and keeps children thinking about them. The examples which children are asked to solve in the course are opportunities to apply the systematic principles of arithmetic to various cases. The project is there, but it is a part of a systematic series of ideas.

There is one application of the general argument here set forth which must not be overlooked. The pupil cannot think systematically about social phenomena if the discussion of these phenomena is mixed up with all other kinds of matters. For example, it has been suggested that social studies are nothing but a branch of

history. Indeed, the historians are many of them convinced even to-day that social studies ought to be turned over to them. But history is organized around certain relations of sequence and national control which are not at all relevant to those relations of cooperative living which the social studies must emphasize. It is no criticism of history to say that it will not serve the purpose of training pupils in social science; it is merely a recognition of the fact that history has its own centers of systematic organization.

It has also been suggested that geography be made the vehicle for social studies. Here we find that the facts of ordinary school experience show the fallacy of expecting geography to solve the problem. Geography tends even now to pass over into the related sciences. The natural sciences of physics and biology take up the phenomena with which geography began, and the subdivisions of commercial and anthropological geography grow out of the demand for a more systematic study of groups of facts which ordinary geography cannot hold together in the upper grades. So long as geography confined itself in the lower grades to locational studies and general descriptions, the subject was characterized by an intelligible plan and clearly recognizable identity. If the attempt is made to have geography carry the burden of too many other types of systematic thinking, it will break up even more than it has now in the upper grades.

The experience of the schools in introducing nature-study ought to make everyone aware of the fact that the task to which the schools have set their hand of arranging the social sciences for school use is a difficult one. It is a task that cannot be pushed off by assigning it to the historians or the geographers or those who are unwilling to study the needs of pupils. The social studies must have a character of their own, and they must be suited to the maturity of pupils.

The third problem, that of converting and educating teachers, is one which must be explicitly understood and dealt with. If the normal schools could be persuaded to drop some of the rubbish which now clutters up their curricula and to put in a series of studies on present-day social conditions, they would render a signal service to the country. The normal schools are, however, very

much like the schools of the country in general, filled with teachers who are so ignorant of social problems that they think there are no such problems.

It is perfectly clear that before the normal schools or the elementary schools can get far in these matters they must enlist the services of people who are trained in the social sciences. These trained specialists must prepare the material. They must point out the leading principles around which thinking in this field must be centered. They must give us the examples which most concretely and vividly show how society works.

School teachers must take the systematic thinking of the specialists and must absorb it themselves and pass it on to their pupils. They must cooperate in finding illustrations near enough at hand to supplement that which is supplied by the specialists.

This means that there must be definitely organized cooperation on the part of school systems. It is not enough to announce the need in a school of social studies. That need must be keenly enough felt by the administration to bring about the allotment of time and energy to the development of the proper means of introducing it into the schools.

Because the social studies are new, they offer better than do any of the older school subjects an opportunity to secure a type of organization which is very much needed in the schools. There is a general need for the setting aside in every school system of a part of the time of the best teachers to prepare lessons to be administered, after they are prepared, by all the teachers. Superintendents ought to induce their boards of education to spend some money every year in the preparation of materials of instruction appropriate to the particular locality in which the system is situated. The new demand for social studies makes this need of the school more urgent than ever and at the same time easy to explain to a school board.

The writer once entertained the hope that the higher administrative officers of the school system, the principals and superintendents, would take a direct hand in preparing social science lessons. He saw the National Association of High-School Principals make two spasmodic efforts and lapse into the usual apathy

of the tired administrative officer. He confines his present suggestions, therefore, and his hopes for the salvation of the schools, to the cooperation of these administrators in finding some one besides themselves who can do the work.

The conclusions reached in the foregoing paragraphs are, then, in summary as follows:

1. Social studies can best be introduced at this time in the seventh grade and the grades immediately following.
2. Social studies should be concrete and vivid. They should deal with personal relations to such concrete problems as occupation and social cooperation.
3. The material for the social studies should be organized in a definite, scientific system around certain guiding principles.
4. This material should be prepared with the largest possible cooperation of trained specialists and a few selected teachers who are given time to perfect their work.

## CHAPTER III

### THE PROPOSAL OF THE COMMISSION OF THE ASSOCIATION OF COLLEGIATE SCHOOLS OF BUSINESS

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At its meeting in May, 1922, The Association of Collegiate Schools of Business received a report from its Commission on the Correlation of Secondary and Collegiate Education. This Commission was made up of representatives of secondary-school work, labor, employers, and the Association itself. In this, its first report, it confined its attention to a discussion of Social Studies in Secondary Schools, with particular references to the 6-3-3 plan of school organization.

The list of the more important chapters of the report in itself indicates its scope. There are chapters on:

Social Studies in the Business Curriculum

The Previous Proposals Concerning Social Studies in Secondary Schools

The Actual Position of Social Studies in Secondary Schools

The Actual Position of Social Studies in Secondary Commercial Curricula

What The Collegiate Schools of Business Do By Way of Correlation

The Administrative Reorganization of Our School System

The Proposal of the Commission

For purposes of this article, the most significant part of the Commission's work is to be found in its final chapter setting forth the proposal of the Commission. The material that follows is accordingly taken almost verbatim from that report.

It will facilitate study and criticism of this proposal to set forth at this time the considerations which were in mind. Briefly stated, these considerations were as follows:

1. The organization of social studies in the public schools should be in terms of the purpose of introducing those studies.



Their purpose is that of giving our youth an awareness of what it means to live together in organized society, an appreciation of how we do live together, and an understanding of the conditions precedent to living together well, to the end that our youth may develop those ideals, abilities, and tendencies to act which are essential to effective participation in our society. The range of this statement is very broad. For example: the contribution of knowledge and physical environment to our social living is quite as worthy of attention as are the principles of economics or government. Parenthetically, it may be noted that, "awareness," "appreciation," and "understanding" come only when descriptive facts are presented in their relationships.

2. The question should not be "how to put the social studies into our curricula" but "how to organize our curricula around social objectives." This Commission believes that the social studies should be the backbone of secondary education, with which all other studies and school activities should be closely articulated according to their contributions to the social objectives of education. Since each individual must be a citizen and as such must participate in group action, the social studies should be represented in each grade of education, and every pupil should have at least one unit of social study in every year of the school course. As for the specific junior-high-school courses mentioned below, the commission does not attempt to decide whether they should be unit courses or half-unit courses. Possibly they should be so drawn as to make either arrangement possible according to local needs and resources.

It is essential that we free our minds from any such issue as the claims of history vs. those of economics vs. those of government vs. those of sociology. Those claims will largely disappear in any vital discussion of the contribution of social studies to our social living. These branches of social study are not separable, save for the purpose of emphasizing some particular point of view on social living.

3. The social studies should be directed toward an understanding of the physiology rather than the pathology of social living. This does not mean that pathology is to be disregarded, but it does mean that it should not occupy the center of attention. Such a

position does not reject the "problem method" of instruction. That method should be quite freely used; but it should be directed toward understanding the anatomy and physiology of society.

The center of attention should be our social living in this country and how it came to be what it is. Just what should occupy this center of attention is the essence of the problem. There will presumably be put in the background of attention (but it is still in the field of attention) some material now occupying a prominent place in our social studies. Such background material should be presented (a) in required courses only to the extent to which it contributes significantly to the understanding of our social living and (b) in elective courses.

4. Any program of social studies which hopes to be successful must be drawn with consideration for vocational needs. This suggests no conflict of interests. Men *work* together in organized society. Vocational training will be greatly improved—even as a "money-making" matter for the individual—by the right kind of social study backbone. Specialized studies should not be allowed to supplant fundamental courses.

5. The program of social studies which is drawn with recognition of the great losses in our student constituency in certain years seems likely to accomplish the greatest good for the greatest number, provided this does not mean too great weakening of basic training. It will be found that the program later proposed recognizes that students drop out every year, but it does not neglect to provide for continuity and progression.

6. The reorganization which is now in process in our educational system (which opens up the seventh and eighth grades for the introduction of new material) justifies a somewhat daring attempt to think through, as a coherent whole, our presentation of secondary-social studies, without too much regard for traditional claims or customary practices. More specifically, there is here an opportunity to introduce *social study* rather than specialized branches of social studies.

7. An effective program of social studies will be organized in terms of the psychology of learning. The average child of the seventh grade is at least beginning to have a social consciousness.

His mind is reaching out to understand his relationships to other people and to society as a whole. The fact that he is not aware of his developing attitude does not interfere with making use of this interest.

The unfolding of the social studies should not be too rapid to allow the student to build up an apperceptive basis for his thinking. Accordingly, the program suggested passes (1) from a seventh-grade discussion of *types* of social organization and some *conditioning factors* of the types, (2) through an eighth-grade survey of the *development* and *practices* of our modern social organization, (3) to a ninth-grade discussion of *principles* of social organization, and (4) ultimately to a senior-high-school discussion of social science material in somewhat more specialized terms. Such a development will contribute markedly to "giving our youth an awareness of what it means to live together in organized society, an appreciation of how we do live together, and an understanding of the conditions precedent to living together well, to the end that our youth may develop those ideals, abilities, and tendencies to act which are essential to effective participation in our society."

8. The program of social studies which is drawn in such a way as to minimize administrative difficulties, will, other things being equal, be most rapidly introduced.

So much for background considerations. As a statement prefatory to the junior-high-school proposal, it is assumed that in the first six grades students have acquired certain tools and methods of study, and that they have been given a body of material in history, community civics, and geography which will serve as a foundation for the studies suggested below. It is recognized that the successful introduction of such a junior-high-school program as is sketched below would in time influence rather profoundly the work of the first six grades. But that is another story.

#### A SUMMARY VIEW OF THE PROPOSED JUNIOR-HIGH-SCHOOL PROGRAM IN SOCIAL STUDIES

It will facilitate later discussion to present at this point, without explanation or supporting argument, a summary view of the pro-

posal as a whole. This summary view will present, in specific terms, only the work in social studies.

#### Seventh Grade

1. Geographic bases of (physical environment with relation to) United States development
2. Social science survey (types of social organization)
  - a) Simple industry and simple society
  - b) The transforming effects of scientific knowledge
3. Other studies, correlated so far as may be practicable with the social-study material

#### Eighth Grade

1. The opening of the world to the use of man
2. Vocational survey, the individual's place in our social organization (presented in functional terms so that it may contribute to an understanding of *our* type of social organization)
3. Other studies, correlated so far as may be practicable with the social-study material

#### Ninth Grade

1. The history of the United States (presented with "citizenship material" occupying the center of attention)
2. Principles of social organization (economic, political, social)
3. Other studies, correlated so far as may be practicable with the social-study material
4. A general survey of business administration, elective

#### A DETAILED VIEW OF THE WORK OF THE SEVENTH GRADE

The work of this grade sets out consciously to "give our youth an awareness of what it means to live together in organized society, an appreciation of how we do live together, and an understanding of the conditions precedent to living together well." Its emphasis is upon the first and third of these propositions, without at all neglecting the second. The survey of types of social organizations in simple societies emphasizes the first; the survey of the transforming effects of scientific knowl-



edge, the work in geography, and the work in science emphasize the third. Of course, there is no intention of making a sharp differentiation in treatment.

The foregoing statement of purpose may be stated differently.

The work of this grade seeks to sweep together, into a somewhat organic whole, the social-study work of the first six grades, and to take a further step in *generalized* thinking in the field.

The work in geographic bases of (physical environment with relation to) United States development is designed:

1. To bring into an organic whole the preceding work in history, civics, and geography in such a way as to
2. Show the importance of physical environment with respect to conditions precedent to living together well and to
3. Prepare the way, in terms of principles, for the work of the next two grades and to
4. Give the student who can go no farther a significant contribution to his "appreciation of how we live together and understanding of the conditions precedent to living together well."

The social-science survey of types of social organization is designed:

1. To bring into an organic whole the preceding work in history, civics, and geography in such a way as to prepare the way, in terms of principles, for the work of the next two grades.
2. To lay a comparative basis for the later more careful survey of the evolutionary development of the functioning social structure.
3. To give the student who can go no farther a significant contribution to his "awareness of what it means to live together in organized society, appreciation of how we do live together and understanding of the conditions precedent to living together well."

The suggested method of presenting this social science survey material is as follows:



1. Present a series of snapshots of simple types of social organization, such as

The life of Neolithic man

The life of the Iroquois

The life of nomads

Life in a medieval manor

Life in a medieval town

Life in a modern secluded mountain district

Life in a frontier mining camp

in which the student can see how such matters as education, religion, health, social control, economic activities, etc. (these are only samples) were cared for and can begin to see wherein our ways of caring for such matters are different, if different.

This comparative study should be directed toward bringing out certain concepts, of which the following may be taken as samples (they are only samples): self sufficiency vs. interdependence; customary vs. competitive methods; non-exchange vs. exchange society; non-industrial vs. industrial society; the shifting emphasis in social control; the modern co-operation of specialists—all with the idea of leading the student to “generalize” his knowledge and with the further idea of preparing him for the study of “principles” in the ninth grade.

2. The latter part of the survey is to be devoted to showing the contribution of knowledge “to our living together *well*” and how that reacts upon the type of social organization. This should be no mere threadbare account of the industrial revolution: it should be an account of the transforming effects of science on our ways of living together. Notice that the way has been prepared by the student’s work in science, if science is offered in this grade.

#### A DETAILED VIEW OF THE WORK OF THE EIGHTH GRADE

There is presumably no need for a detailed statement of the general purpose of the work of this grade. It is obvious that, in addition to caring properly for those who must drop out at the

end of the year, this grade must (a) begin to give many students a rational basis for selection of vocations and (b) continue the preparation for the more generalized social study of the ninth grade.

The work in "The Opening of the World to the Use of Man" is designed:

1. To knit together and to build upon the social-science survey and geography of the preceding grade in such a way that the student will get as a part of his mental machinery—as tools of which he will make *conscious* use—concepts of change, development, and continuity
2. In respect to factual background, to give the student some appreciation of the long, hard trail the human race has climbed; to let him see the emergence of Western civilization, its spread over the earth and its contacts with other civilizations
3. To give the student the "world-background" against which the history of his own country (ninth grade) may be seen in perspective and to make him "cosmopolitan" and "international" in a wholesome sense of those words.

The vocational survey (the individual's place in our social organization) is designed:

1. To give the student an opportunity (upon which their experience has caused so many school men to insist) to think through *in specific terms* his own possible contribution to social living. Whether this results in his actually "choosing a vocation" matters little, if at all. Out of it, he should get a clearer notion of the qualities making for individual success in the process of social living.
2. To give this, however, not as a set of maxims and preachments and not as a set of "job analyses" but as a survey of the activities (emphasizing here economic activities without neglecting political and social considerations) which are carried on in *our* type of social organization, and
3. To do this in such a way that he will glimpse *an economic organization* in which activities are *in terms of social pur-*

poses. By way of illustration. The student who sees the "undifferentiated" medieval trader split up as time goes on into transporter, insurer, financier, seller, etc., will have a different conception of the work of railroads, insurance companies, banks, etc., from the one he would have had after an unconnected "study of occupations." In other words, the vocational survey is designed to give the student a more thorough and specific conception of our social organization as it actually operates in our "living together."

#### A DETAILED VIEW OF THE WORK OF THE NINTH GRADE

Here, also, a detailed statement of general purpose may be omitted.

Looking back over the junior-high-school curriculum, this year's work seeks to knit together the preceding work (*a*) in terms of *principles*, and (*b*) in terms of their application to citizenship in our own country. Looking forward to the work of the senior high school, this year's work seeks to pave the way for the more specialized presentation of the social sciences.

The work in the history of the United States (presented with "citizenship material" occupying the center of attention) is self-explanatory, if it be kept in mind that the ideal is that of bringing the social-science work of the preceding grades, as well as that of this ninth grade, to a focus in this account of the development of our own social living together. Such a statement indicates the kind of history which is to be presented.

The work in principles of social organization assumes that the student has been given sufficient factual background and has attained a sufficient maturity to enable him to view our social living in terms of *principles* rather than in terms of *types* or of *practices*. It asks the student to do, *as a conscious matter*, a most fundamental thing, namely, *seek relationships on a scale which will give him an organic view of our social living*. He is asked (so far as he may now be able) to formulate *consciously* the principles of social living which should guide him in later years. It is to be noticed in passing that no such opportunity now exists in any stage of our school curriculum. It is con-

ceivable that the first draft of this will have to be in three parts (1) economic organization, (2) political organization, (3) social organization not otherwise handled. But it is hoped and expected that it may be done not as three parts but as one unified whole.

While it forms no part of the basic material, the elective work (for those who plan to take the so-called commercial course) in Survey of Business Administration deserves passing notice. It should dovetail both with the vocational survey of the preceding grade and with the work in Principles of Social Organization of this grade. It should provide the sadly lacking unifying element in the present miscellaneous collection of "commercial courses." It should be of distinct vocational service for the student who can go no farther and it should pave the way for a higher standard of "commercial courses" in the senior high school.

#### A HINT OF THE PROGRAM OF THE SENIOR HIGH SCHOOL

The foregoing sets forth the material on which the Commission particularly covets discussion, but it is worth while to suggest something of its bearing upon the senior-high-school program. It is assumed that in each year of the senior high school, some social-study work will be required and that the work will be presented in more specialized (scientific?) form than it was in the earlier grades.

The following statement gives merely a suggestion of possible courses *in the field of economics and business*. Perhaps it contains hints for other fields of study. The Commission believes that our larger high schools, at least, might in time offer considerable choice of courses in the fields that we now designate as political science, history, psychology, and sociology.

1. The financial organization of society and the manager's administration of finance.
2. The market organization of society and the manager's administration of the market.

3. The position of the worker in our society and personnel administration.
4. The evolution of our economic society. (Note that this is vastly more than a "History of Commerce" and vastly more than the typical "Industrial History.")
5. Accounting (not merely as bookkeeping but also as an instrument of control in the hands of the executive).
6. Business Law (as a manifestation of social control of business activity and as a facilitating aid of business).
7. Such *technical* courses as may be expedient. An illustration is shorthand and typewriting.
8. Theories of value and distribution.
9. Government and industry.

#### THE PROGRAM OF THE FOUR-YEAR-HIGH SCHOOL

Whatever may be in store for the future, there can be no doubt that the 8-4 form of organization of our public schools is to-day the dominant one, and the Commission quite recognizes that it might well have worked out in detail a four-year program of secondary-social studies. The reasons why it did not do so have been given in its introductory statement. It believes that just at this juncture, its best service can be rendered by focusing attention upon the 6-3-3 plan. It points out in passing, however, that from the social-study material outlined in this report there is much material (a full four-year schedule, indeed) which the four-year-high-school administrator will find available for his use. Just what he will choose to use will of course vary with varying local conditions.

As a means of making the program suggested above readily comparable with other proposals which have been made a comparative statement of three proposals is presented.



# COMPARATIVE STATEMENT OF THREE PROPOSALS

MARSHALL

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	Seventh Grade	Eighth Grade	Ninth Grade	Tenth Grade	Eleventh Grade	Twelfth Grade
1. Committee on History and Education for Citizenship, American Historical Association	The world before 1607 and the beginnings of American history including rise of Latin-American Republics	The world since 1607 viewed in relation to the evolution and expanding world-influence of the United States	Community and national activities OR Progress of civilization to about 1650	Progress toward world-democracy since 1650 (mainly European history emphasizing political aspects but seeking explanations in economic changes, inventions, discoveries, socialregroupings, leadership, and thought)	United States history during national period studied in same spirit as that indicated for tenth grade	Social, economic, and political principles and problems
2. 1916 Report of Sub-committee on Social Studies in Secondary Education National Education Association Commission on Reorganization of Secondary Education	Geography in sequence (½ yr.), or European history (½ yr.), or Civics as phase of above, or segregated or both OR European history (1 yr.) Geography taught incidentally to history Civics as cited above	American history in sequence (½ yr.), or Civics (½ yr.), or parallel Geography taught incidentally to above	Civics, state, national, and world-aspects (½ yr.) OR Civics, economic and vocational (½ yr.) History in connection with above OR Civics, economic, and vocational in sequence (½ yr.), or parallel Economic history (½ yr.)	European history to approximately the end of the seventeenth century (1 yr.), including ancient, oriental, English, and American exploration European history (including English) since end of seventeenth century (1 or ½ yr.) American history since the seventeenth century (1 or ½ yr.) Problems of American Democracy (1 or ½ yr.)		
3. Commission of the Association of College Schools of Business and Commerce Committee of American Economic Association	Geographic bases of (physical environment in relation to) United States development Social-science survey (types of social organization) a) Simple industry and simple society b) Transforming effects of knowledge Other studies correlated	Opening of the world to the use of man The place of the individual in our society (vocational survey) Other studies correlated	The history of the United States Principles of social organization Other studies correlated	The presentation of social studies in more specialized form and more in accord with the traditional divisions of the social sciences than was suggested for the earlier grades. Availability of material, local organization of curriculum, and vocational needs will all play a part in determining the selection of courses.		

## CHAPTER IV

### HOW THE CURRENT COURSES IN HISTORY, GEOGRAPHY, AND CIVICS CAME TO BE WHAT THEY ARE

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#### WHAT THE COURSES CONSISTED OF, 1892-1912

For nearly ten years there has been an insistent demand that school courses in history, geography, and civics be so organized that they will make a more definite contribution to those activities of pupils that train for effective citizenship.

Between 1892 and 1912 reports of committees, chiefly those of the American Historical Association, and the formulation of entrance requirements by our colleges and universities, brought about "programs" and curricula in history and civics that nearly all American schools adopted. American high schools increasingly became preparatory schools for our colleges. When the higher institutions of learning demanded that students desiring a college education should show evidence of scholarship in their high-school courses, the secondary schools were forced to devote much of their instruction to subject matter that would meet these conditions.

In the field of history college professors were "alarmed" at the little knowledge of their subject that high-school pupils, entering their classes for advanced study, exhibited. Hence, they met together as "committees" and outlined courses that elementary and secondary schools should follow. They believed that these measures would remedy the defect. In this period, then, American schools came to teach courses outlined by the college specialists as follows: in the seventh, eighth and twelfth years, United States history; in the ninth year, Ancient history; in the tenth year, Medieval and Modern history; and in the eleventh year, English history.

History, being the older and better organized subject, came to occupy a prominent place among the social subjects thought to

have preparatory value in citizenship training. Civics, up to a short time ago, was largely a study of the United States Constitution. Historians, giving considerable space in their textbooks to the Constitutional Convention, asserted that civics was best taught as an integral part of history. So committee reports set aside a part of the eighth and twelfth-grade history courses for civics. If civics received any independent instruction, it was usually only as an elective course. Geography, except for elective courses in commercial geography, was an elementary-school subject. Its development was not then of interest to the college teachers of history. Thus, the growth of this subject came about, apart from suggestions of committees of university specialists. Textbooks by students of geography—Frye, Dodge, Tarr, McMurry, McFarlane, Atwood, Smith, and others—gradually produced the human-physical type of geography that we know to-day.

Reading courses with emphasis upon a detailed mastery of countless facts in a textbook summarized citizenship training in history, geography, and civics up to about a decade ago.

#### A BROADER CONCEPT OF WHAT IS REQUIRED FOR CITIZENSHIP TRAINING HAS DEVELOPED IN RECENT YEARS

Since about 1912 or 1913 these traditional courses in history, geography, and civics have been reorganized and broadened into a group of school courses that are now known as the social sciences.

To-day the situation is briefly this: instead of school courses being controlled by the specialists in history, we find other specialists in economics, civics, and sociology demanding and receiving their "place in the sun." Moreover, we find school teachers, administrators, and curriculum-workers in Schools of Education drawing up social science courses independent of, or with the advice of, the specialists in subject matter.<sup>1</sup> Still these last-named curriculum-makers recognize the necessity of consulting the specialists in the various social sciences; their scholarship and training

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<sup>1</sup>Examples of this tendency are found in the activity of the National Association of Secondary-School Principals, and of a sub-committee on social studies of a commission of the National Education Association authorized to suggest revisions of high-school curricula.

certainly demand that their advice be sought and carefully considered.

The efforts of these new workers have produced much broader and more comprehensive courses in the social sciences for junior and senior high schools. The chief changes to be noted are:

(1) Instead of an analysis of the Constitution or a "dissecting" of the machinery of our government, a pupil now studies community activities and what the government does for the people.

(2) Ancient and Medieval history are coming to be taught in a one-year course, called Early European history; rather than as two independent courses embracing two years of study.<sup>2</sup>

(3) There is a decided increase in the number of courses offered other than history and the old type civics—such as economics, sociology, current events, vocational civics, social problems, and "Problems of Democracy."

(4) More time is now devoted to the so-called extra-curricular activities—factors in school life which supplement existing reading courses in history, civics, geography, economics, and sociology. A question blank investigation indicates a decided interest in, and provision for, such activities as Boy Scouts, Girl Scouts, Junior Red Cross, Thrift Clubs, Debating Clubs, Military training, Mock Elections, Excursions, Dramatizations, Student Councils, and school government. In many schools these are organized and recognized by school faculties, because it is felt they provide better opportunities for the pupils to participate in community life.

THE AIMS CLAIMED FOR THE STUDY OF HISTORY, GEOGRAPHY, AND CIVICS ARE ONE HUNDRED YEARS OLD. ARE THEY SUBSTANTIATED BY THOSE SUBJECTS AS ORGANIZED AND TAUGHT?

During this period, when such courses are undergoing many changes, one should inquire what outcomes are to be expected from the teaching of the social subjects. Should there not be definite reasons for teaching each subject in our curriculum and definite outcomes to be sought? Can we not insist that these courses justify themselves by giving us some objective evidence that their teaching produces the values and outcomes claimed?

A study of the history of how these subjects have been taught for over one hundred years shows how little progress we have made

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<sup>2</sup>Some historians are even recommending that ancient, medieval, and modern history be taught in one year instead of devoting three years of study to these subjects, as recommended since 1899.



in proving their values. They were first taught in the early 1800's for practically the same reasons that they are taught to-day. These may be grouped as follows: (1) Training for citizenship,<sup>3</sup> (2) Inculcation of patriotism, (3) Disciplinary values in training the memory, judgment, imagination, and other "powers," (4) Leisure.

In our early history, as well as in recent times, citizens interested in public education believed that pupils must be "trained" to take their places as citizens. They should be taught to revere our institutions and heroes. Love for their country should be stimulated. Their minds should be "disciplined" by a rigorous method of study. Lastly pupils should study history and civics in order that in their leisure they could further "improve" themselves.

The history of American education contains several examples of how the nation has turned to school courses in history, geography, and civics at different times to accomplish something that the people, sometimes a majority and sometimes a minority, thought essential to progress. Up through the early 1800's our government was aristocratic.<sup>4</sup> The suffrage was restricted to those holding property; hence the ballot was denied to a large percentage of the people. But the growth of the West, 1800-1860, and the creation of new states where land was virtually "free," abolished property qualifications for voting. As each of these new Western territories was admitted as a state, with a constitution framed and adopted by pioneers in communities where everyone was on an equal footing with his neighbor, the ballot was given to every male citizen. Also in the older and better developed eastern states, universal male suffrage was achieved early in the nineteenth century.

One of the first things that these newly enfranchised people did was to battle for free, tax-supported public schools. Obtaining this object, they naturally turned to reforming and broadening the curricula of existing schools. They found little subject matter that would instruct the youth of the country in the duties and responsibilities of citizenship. Hence they demanded that such

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<sup>3</sup>This phase has never been fully explained.

<sup>4</sup>Cubberley, E. P.: *Public Education in the United States*, pages 108-112. Houghton Mifflin Company, Boston, 1919.



courses be organized and taught. The school course of the times was almost entirely the "3 R's"—reading, writing, and arithmetic. Famous textbooks of the early period were: Noah Webster's blue-backed *American Spelling Book*, Caleb Bingham's *Columbian Orator*, Dilworth's *Schoolmaster's Assistant*, and Coburn's *First Lessons in Arithmetic on the Plan of Pestalozzi*.

Public demands for the teaching of history, geography, and civics are evident in several periods of our history. In general, this interest of the public is reflected only when certain groups believe that our governmental institutions are threatened or when some great crisis causes citizens to inquire into the existing situation. At other times most of us are too busy to inquire into, or be concerned about, the condition of our government or to find out whether the rising generation is receiving the "necessary" training in citizenship.

The first civics book, published in 1797—a little political catechism by one Elhanan Winchester—illustrates this in our early history. Winchester was a New England Federalist and was greatly "frightened" at the rising tide of Jeffersonian democracy, exhibited first in the last decade of the eighteenth century. His remedy was to teach pupils "sound" principles of government. Again, about 1830, a new type of democracy appeared. Jackson and his adherents representing the new section, a virile western democracy, came into control of the national government. Again we find textbooks appearing by "guardians of the old order," aiming to counteract this democratic movement by instructing pupils about the Constitution. Thus they thought that "reverence" for existing institutions would be strengthened.

The Civil War also emphasized the citizenship and patriotic values of history, geography, and civics. With the Union preserved and the national government paramount, the interest of our people in these subjects naturally increased. This is evident in the tone of the textbooks that appeared in this period.<sup>5</sup>

The last inquiries into the values of citizenship and patriotism, while beginning about ten years ago, were enormously increased during the Great War. War-issues courses, the attention paid to

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<sup>5</sup>See Barnes' *Brief History of the United States*, page vi.

war activities in the schools, the participation of schoolmen and women in helping win the war, and Americanization work, all contributed to revive these values. This description of the reasons why history, civics, and geography came to be taught helps to explain how the current courses came to be what they are.

### HISTORY, GEOGRAPHY, AND CIVICS WERE DEFINITELY ORGANIZED COURSES BEFORE 1860

These courses were well established in our schools prior to the Civil War. The history that was taught was American history in the upper elementary grades and in the academics; in the latter we also find General history, English history, Roman Antiquities, Greek Antiquities, and some State history.<sup>6</sup> Civics was chiefly a study of the state and of the national Constitution. It was taught in the secondary schools of the time, the academics; usually as a part of United States History.<sup>7</sup> Geography during this period was taught as an elementary-school subject.<sup>8</sup>

That these courses were firmly fixed in our curriculum before the Civil War is shown by the following evidence: first, the publication of many textbooks indicates that history was studied. The textbook determined what was taught in that period, just as school texts to-day pretty well represent the content of history courses. Thus when one finds that before 1860 there were 360 different histories published,<sup>9</sup> one may conclude that there must have been well-organized history courses prior to 1860. The reports of the period testify still further as to the character of these courses. While detailed lists of texts for civics and geography have not been compiled, the existence to-day of about a dozen civics texts of the

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<sup>6</sup>Russell, W. F.: *The Early Teaching of History in the Secondary Schools of New York and Massachusetts*. McKinley Publishing Company, Philadelphia, 1915.

<sup>7</sup>Dawson, E.: "The beginnings of political education." *The Historical Outlook*, vol. 9, page 439.

<sup>8</sup>Holtz, F. L.: *Principles and Methods of the Teaching of Geography*. The Macmillan Company, New York, 1921 and Cubberley, E. P.: *Public Education in the United States*. Houghton Mifflin Company, Boston, 1919.

<sup>9</sup>Russell and Jaquith added to Henry Barnard's earlier compilation and Russell reports in his monograph; 107 United States Histories, 114 General Histories, 78 Ancient Histories, 28 English Histories, and 33 miscellaneous Histories.

early period<sup>10</sup> and some eight or ten geographies published before 1860 would lead one to conclude that these subjects were also studied.

The title pages of these early texts tell something of their characteristics. A notable history of the period was C. A. Goodrich's *History of the United States on a Plan Adapted to the Capacity of Youth and Designed to Aid the Memory by Systematic Arrangement and Interesting Associations*. This book ran through fifty-six editions and is said to have sold over 500,000 copies. Other histories with equally long titles and similar in style and content were written by Noah Webster (the greatest textbook writer of his time), S. G. Goodrich (the famous Peter Parley), and Emma Willard (a prominent leader in the movement for the training of teachers).

Well-known civics books of the period, besides Winchester's early political catechism referred to earlier,<sup>11</sup> are those written by A. W. Young, E. D. Mansfield, J. B. Shurtleff, and J. B. Burleigh. Young's text is entitled, *Introduction to the Science of Government and Compend of Constitutional and Civil Jurisprudence, Comprehending a General View of the Government of United States and of the Government of the State of New York, together with the most Important Provisions of the Constitutions of the Several States; adapted to Purposes of Instruction in Families, and Schools*. Young's title indicates the emphasis placed upon the study of the constitution and serves to show the tendency to acquaint not only the pupils of the times but the citizens themselves with their government.<sup>12</sup> Dawson, an authority on early civics textbooks, says that Young's book was re-edited as late as 1901, and "seems still to be taught in the schools."

Before 1860, among the geographies that were used were those written by Jedidiah Morse, Caleb Bingham, S. G. Goodrich, Daniel Adams, Jacob Willetts, William Woodbridge, and Sidney Morse,

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<sup>10</sup>Dawson, by his description of these early civics texts, rather effectively disproves a current impression that civics was not taught "until some years after the middle of the nineteenth century." See article on "Civics" in Monroe's *Cyclopædia of Education*, for this last statement.

<sup>11</sup>The full title of this early civics is *A Plain Political Catechism Intended for the Use of Schools in the United States of America, wherein the great Principles of Liberty and of the Federal Constitution are laid down and explained by way of Question and Answer, made level to the lowest capacities*.

<sup>12</sup>In many of these early texts one finds the phrase: "intended for the use of families."

son of Jedidiah Morse. Geography came into the curriculum early; the first edition of the most commonly used geography of this period—that of Jedidiah Morse—was published in 1774. Part of its title page runs as follows:

“Geography Made Easy, Being a Short But Comprehensive System of that Very Useful and Agreeable Science. Exhibiting in an easy and concise View, the Figures, Motions, Distances and Magnitudes of the heavenly Bodies:—A general description of the Earth considered as a Planet; with its grand Divisions into Land and Water, Continents, Oceans, Islands, etc.—The Situation, Boundaries and Extent of the several Empires, Kingdoms, and States, together with an Account of their Climate, Soil, Productions and commerce:—The Number, Genius and general Character of the Inhabitants:—Their Religion, Government and History—Calculated particularly for the Use and Improvements of Schools in the United States.”<sup>13</sup>

Second, a few references to state laws requiring history, geography, and civics are also found and indicate still more the insistence of the people that these subjects be taught. Geography was required by law in Massachusetts in 1826 and the history of United States in 1827. (The latter was one of the subjects of this state's famous high-school law of 1827.) Vermont also in 1827 added history and geography to the courses in its curriculum. Cubberley says, “New England people, moving westward into the North-West territory, carried these school requirements and the early textbooks with them, and the early schools set up in Ohio and Michigan were copies of those in the old home.”<sup>14</sup> Early programs of public and private schools also indicate the inclusion of history and geography between 1820 and 1860 as regular school subjects.<sup>15</sup>

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<sup>13</sup>Quoted by Holtz, F. L.: *op. cit.*, page 322. (This is a reprint of the title page of Morse's “Geography made Easy,” 1774. With permission, from the G. A. Plimpton collection.)

Russell, W. F., *op. cit.*, page 7, says, “In the early years of the nineteenth century such history as was taught was usually included with the classics, geography, or reading, particularly with the declamation work.” Noah Webster says that he wrote a twenty-page account of the history of the United States at the request of Morse and this was included in his edition of that time (about 1787). An analysis of early histories reveals the same encyclopedic content as is found in the current histories (see tables in the appendix). The analysis of the early geographies and civics has not been completed as yet.

<sup>14</sup>Cubberley, E. P.: *op. cit.*, pages 223-227.

<sup>15</sup>Professor Henry Johnson told the writer recently that a Cleveland school program of the early 1800's shows four years of history required.



Third, school reports of this period show also the extent to which these courses were taught. In 1841-42 Horace Mann, Secretary of the then recently organized State Board of Education of Massachusetts, says in his annual report for that year that, of 304 towns investigated, he found 167 offered United States history and 62 offered "other" history, while 104 offered algebra, 16 Latin, and 181 Natural Philosophy. He also found 10,177 pupils studying the History of the United States; 2,571 were studying General History, while 2,333 were studying Algebra; 1,472, Bookkeeping; 858, Latin; 601, Rhetoric; 463, Geometry; 416, Human Physiology; 330, Logic; 249, Surveying; and 183, Greek.<sup>16</sup>

Similarly, in New York the *Report of the Regents of the University to the Senate of New York* for 1860 shows 164 academies offering United States history; 121, General history; 73, Roman Antiquities; 59, Greek Antiquities; and 46, Constitution, Government and Law. The number of textbooks in history and civics in use in New York, according to the *Seventy-Fourth Report of the Regents*, was as follows: 177 United States Histories, 163 General Histories, 75 texts on Roman Antiquities and 65 on Greek Antiquities and 45 books on the Constitution, Government, and Law. In 1825 only 38.8 percent of New York pupils attended schools where history and civics were taught; in 1860 this percentage had increased to 95.<sup>17</sup>

Are not the large number of textbooks in use, early State laws and programs and State reports, sufficient evidence that history, civics, and geography were important subjects of instruction in the schools of two states leading in education in this period before the Civil War? Scattered references to programs, laws, and reports of educators in other states, as well as to the establishment of teacher-training institutions (normal schools) where history and

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<sup>16</sup>See Inglis, A. J.; *The Rise of the High School in Massachusetts*, Teachers College Contributions to Education, No. 45, page 75, Bureau of Publications, Teachers College, New York, 1911, and Massachusetts, *Sixth Annual Report to the Board of Education*, 1843, page 55.

Russell, W. F.; *op. cit.*, page 8, says these data are especially significant in that the law of 1827 was not in effect at the time. Civics, while not mentioned by Horace Mann, was probably taught in connection with the history of the United States; an examination of the textbooks shows this tendency.

<sup>17</sup>Russell, W. F.; *op. cit.*, pages 8-10.



geography were early required subjects of instruction<sup>18</sup> and the beginnings of the tendency for colleges to demand history as an entrance requirement, further demonstrate the place of these subjects in the course of study of American schools prior to 1860.

There is some evidence that history came into the elementary schools in much the same way. For example, the report of the New York Superintendent of Schools for 1844 states that history was taught in most of the elementary schools of the entire state.<sup>19</sup>

Courses, both in the elementary and in the secondary schools, placed chief emphasis upon the mastery of countless facts in history and geography and civics. Nearly half of the content of the typical early history texts was devoted to military history; 83 percent, to political and military history. Scattered references—a few lines on a page—were all the opportunities afforded pupils to learn about fundamental social and economic topics and the life of the people in the past. Hundreds of names, references to scores of dates and places, are found in each of the texts.<sup>20</sup>

Moreover the text was *memorized*; a common practice was to recite it like a declamation exercise. Few thought-provoking questions were asked and interpretation of the text material was rare.<sup>21</sup> The most widely-used history of the period contains this direction to the teacher. "The general divisions should be first very thoroughly committed to memory" and then "that portion of the work which is in large type embracing the leading subjects of history should be committed to memory by the pupil."<sup>22</sup>

Memorization was further illustrated by the practice of some authors to write history, geography, and civics books in the form of questions and answers—the catechetical method. An example of this type is as follows:<sup>23</sup>

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<sup>18</sup>*Ibid.*, page 12.

<sup>19</sup>Johnson, H.; *The Teaching of History in Elementary and Secondary Schools*, page 130. The Macmillan Company, New York, 1916. The early teaching of history in the elementary schools has not been investigated in any detail.

<sup>20</sup>See tables in the appendix. These characteristics are evident also in current texts. It is their great defect.

<sup>21</sup>This method of study continued down to the late 1800's. Some evidence points to the fact that it is still followed in a few schools.

<sup>22</sup>Goodrich, C. A.: *History of the United States* . . . 1824 edition, page 3.

<sup>23</sup>Bingham, C. A.: *Historical Grammar*, page 171.

- “Q. Did the Emperor Leopold live late in the century?”  
 “A. He died in one thousand seven hundred and five, at the age of sixty-five.”  
 “Q. Who succeeded him?”  
 “A. His son, Joseph, who died in the year one thousand seven hundred and eleven, at the age of thirty-three.”  
 “Q. To whom did the Empire afterwards devolve?”  
 “A. To his brother, Charles VI, Archduke of Austria, and competitor with Philip V for the crown of Spain....”  
 “Q. How long did he reign?”  
 “A. To the year one thousand seven hundred and forty. He died at the age of fifty-five....”

Protests of a few teachers against these formal, “dry” methods of study are found in the educational journals and reports of the time. Gradually many of the progressive practices of to-day found favor. Review questions, suggestions for teaching by the topical method, the use of outlines, maps, and charts, collateral reading, and notebook work are discussed by a few teachers, and provision for many of these methods in later editions of the text would seem to indicate their increasing use.<sup>24</sup>

Did these early histories, geographies, and civics acquaint pupils effectively with the activities, modes of living, and problems of *their day*? The answer is; *they did not*.

#### CHANGES IN SCHOOL COURSES IN HISTORY, GEOGRAPHY, AND CIVICS BETWEEN 1860 AND 1892

In this period United States history came to be chiefly an elementary-school subject, and General history a secondary-school subject.<sup>25</sup> The strong nationalistic pride, awakened after the Civil War by the preservation of the Union, made history and civics courses the media for the inculcation of patriotism and nationalism. Barnes' (J. D. Steele's) *Brief History of the United States* (1871), one of the most widely-used texts in the late 1800's says, (p. vi) :

“This work is offered to American youth in the confident belief that as they study the wonderful history of their native land, they will learn to prize

<sup>24</sup>Russell, W. F.: *op. cit.*, pages 27 and 28, traces this by a comparison of the editions of C. A. Goodrich's *History of the United States* ...., appearing in 1824, 1829, 1833, 1834, 1852, and 1867.

<sup>25</sup>*Report of the United States Bureau of Education*, 1888, page 404.

their birthright more highly and treasure it more carefully. Their patriotism must be kindled when they come to see how slowly, yet how gloriously, this tree of liberty has grown, what storms have wrenched its boughs, what sweat of toil and blood has moistened its roots, what eager eyes have watched every out-springing bud, what brave hearts have defended it, loving it even unto death. A heritage thus sanctified by the heroism and devotion of the fathers can but elicit the choicest care and tenderest love of the sons."

A study of the constitution of the United States and of the state constitution continued to be the type of civics taught; usually in connection with the course in American history. Several states passed laws requiring this study. In the '80's, however, a new type of civics appeared. The words of Macy, Hinsdale, and others broadened out this analysis of the Constitution into a study of the machinery and forms of government.

Geography instruction also was reorganized in this period. The formal memorization of countless pages of description was vitalized to a considerable degree by the work of Guyot. He brought from Switzerland, his home, the ideas of his teachers, Ritter and Pestalozzi. He introduced the Pestalozzian principle of home geography. His first book (a primary geography) embodying these ideas was a little geographic reader "taking the child about his home locality first, then on journeys farther and farther from home. Physical, scenic, commercial, and historic units or types are chosen for these journeys. . . . A marked feature is that maps are not used before, but after a region has been thus traveled over with picture and text."<sup>26</sup> Two other geographies, designed for the intermediate and upper grades, were also written by Guyot, with the collaboration of Mrs. Mary Howe Smith, of the then famous center of Pestalozzianism in America, the Oswego Normal School.

During this period history grew to be an important subject of study in the colleges. The "seminar" system of graduate study was transplanted from German universities; specialists in history were trained as graduate students; and soon "chairs" of history were established in our leading institutions of learning. Then followed a marked recognition of secondary-school history as a subject to be accepted for entrance to college. In 1895 an investiga-

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<sup>26</sup>Holtz, F. L.: *op. cit.*, page 335.

tion of 475 American colleges showed that 306 of them required for entrance American History; 127, General History; 112, Greek History; 116, Roman History; and 57, English History.<sup>27</sup>

One other change remains to be noted. The American high school supplanted the old type academy in this period. In 1860 there were 321 high schools in the United States; in 1890 there were 2,526.<sup>28</sup> This extension of the opportunities of more children to go to high schools is highly significant. Democracy had established elementary education prior to the Civil War. The tremendous industrial developments of the nation after that war stimulated the rapid development of public high schools. Each high school attempted to prepare pupils for citizenship by offering them a wide choice of subjects of study. With the tremendous growth of our colleges since 1890 the high school, instead of primarily interesting itself in the preparation of pupils for life, has become chiefly a preparatory school for college. If one examines their courses of study to-day, one finds curricula clearly marked out as "College Preparatory" and "Technical Preparatory." These courses have been definitely designed for one purpose—to prepare for college.

When the colleges thus took control of high-school curricula by means of entrance requirements, a new method of making courses in history and civics was introduced.

#### COMMITTEE PROCEDURE BECOMES THE DOMINANT METHOD OF CURRICULUM MAKING, 1892-1922

Up to about 1892 our courses had largely been the work of teachers, clergymen, and professional textbook writers. In the latter category were such men as Noah Webster, S. G. Goodrich (Peter Parley), and Caleb Bingham. They wrote histories, geographies, and readers. It is said that Webster, while writing his monumental dictionary, lived on the income received from royalties on his "blue-backed" speller.

But beginning in the early nineties, as we have noted before, the college professors of history took control of the situation.

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<sup>27</sup>*Report of the United States Bureau of Education, 1896-97, page 468.*

<sup>28</sup>In 1916 there were 12,003 high schools.



They found that high-school pupils entering college classes exhibited little knowledge of history. So they became interested in what should be taught in school history and indirectly in how history teaching, itself, in the schools could be improved.

In 1892 the National Education Association created the famous "Committee of Ten." This Committee was authorized to invite specialists in the various subjects—the classics, English, mathematics, science, history, and civics—to confer as to what school courses in their respective fields should be offered, and also to find out what the relation of each to the preparation for college should be. History, Civics, and Political Economy were "considered" by one of these sub-committees and a "program" of courses was recommended. (See Table I.)

This was the first of many "committees" of college specialists in history and civics<sup>29</sup> that have met and drawn up courses for elementary and high-school pupils. Certain conclusions concerning their methods of curriculum-making stand out sharply. The chief recommendations of these committees have been summarized in Table I. A study of this table, as well as of their detailed recommendations in their published reports (see Bibliography in the Appendix), make evident these conclusions:

(1) A "program" of history and civics courses was suggested for about every five years.

(2) An attempt was made to cover all fields of history; in some "programs" they made an attempt to grade and differentiate the type of content and instruction as between elementary and secondary-school courses.

(3) The school curriculum was dominated by college professors of history and government. If one excludes the only report written by school teachers, under the auspices of their national organization—the N. E. A. Report on the Social Studies, 1916—one finds the total composition of these committees to be: 32 Professors of History and Government (25, deducting those Professors who were on two different committees), 9 Superintendents and Principals, 3 Teachers in elementary or high schools (*for which schools the recommendations of these committees have been prepared*), and 2 Professors of Education. Isn't this significant when one considers that the suggestions and recommendations of the college

<sup>29</sup>It does not appear that committee procedure was influential in the development of geography teaching since 1890; probably because geography was principally an elementary subject.



TABLE I. SHOWS THE RECOMMENDATIONS OF

Name of Committee	Date	Membership of Committee <sup>4</sup>	Third Grade	Fourth Grade	Fifth Grade	Sixth Grade
Committee of Ten, { N.E.A. <sup>1</sup> { A.H.A. <sup>2</sup>	1892 1894	7 Professors 3 Principals			Biography and Mythology	Biography and Mythology
Committee of Seven, A.H.A.	1896 1899	6 Professors 1 Principal	Stories from the Iliad, etc.	Biography	Greek and Roman History	Medieval and Modern History
Course suggested by one member of the						
Committee of Eight, A.H.A.	1905 1909	4 Professors 2 Supt's 2 Teachers	Heroes of Other Times	American History, Exploration to the Revolution	American History, Revolution to the Civil War	European Background
Chiefly Biography Civics to be taught throughout						
Committee of Five, A.H.A.	1907 1912	4 Professors 1 Principal				
Social Studies Committee, N.E.A.	1914 1916	5 Professors 2 Supt's 10 Teachers 4 Unclassified				
Committee of Seven, A.P.A. <sup>3</sup>	1911 1916	6 Professors 1 Supt.	Civic Virtues Little textbook work	A study of simple community activities		
Committee on History and Education For Citizenship, { A.H.A. { N.E.A.	1918 1921	6 Professors of History 1 Professor of Education 1 Supt. 1 Teacher	The Making of the United States			
			Discovery and Exploration	How Englishmen became Americans	The United States, 1783-1877	The United States, 1877 to date (½ year) Civics, (½ yr.)

<sup>1</sup>National Education Association.<sup>2</sup>American Historical Association.<sup>3</sup>American Political Science Association.<sup>4</sup>Seven professors were on two different committees.

specialists have practically determined what has been taught and are still pretty largely determining the instruction of pupils in the great task of citizenship training?

We said that the Committee reports have materially shaped school courses in history and civics. Why? Because no sooner were these reports published than specialists in subject matter issued textbooks which elaborated, systematized, and or prized the facts

## THE VARIOUS COMMITTEES, 1892-1921.

Seventh Grade	Eighth Grade	Ninth Grade	Tenth Grade	Eleventh Grade	Twelfth Grade
American History and Civil Government	Greek and Roman History	French History	English History and Medieval and Modern History	American History	One special topic for intensive study
English History	American History	Ancient History	Medieval and Modern History	English History	American History and Civil Government
committee Grades 3-8					
American History 1500-1789	American History 1789-1909 (Also some emphasis on Modern European History)				
Grades 1-8					
		Ancient History	English History	Modern European History	American History and Government
Geography ½ yr.; European History ½ yr	American History ½ yr. Civics ½ yr.	Civics and Economic History	Ancient and Medieval history to 1700 (1 yr.) Modern European History (½ or 1 yr.) American History since the 17th century (1 or ½ yr.) Problems of American Democracy (1 or ½ year)		
Community Civics (emphasis upon functions but some treatment of the machinery of government.)			An advanced course in civics (Report does not state in which year it is to be offered, nor whether it is a one yr. or ½ yr. course)		
<i>American History in its World Setting</i>			<i>The Modern World</i>		
The World before 1607	The World since 1607 in relation to World Influence of the United States	Community and Nat'l Activities (commercial geography) civics, social & economic history	Modern European History since 1650	American History during the Nat'l Period	Problems of Democracy

suggested for study by the Committee's syllabi.<sup>30</sup> As specialists they are in many ways qualified to write them. Scholarship, thorough training, a broad perspective of the social sciences, and a

<sup>30</sup>Several important movements to improve elementary and secondary-school teaching have failed or have been greatly handicapped because the exponents of the movement failed to write the details of their plan into textbooks; notably the Herbartian emphasis upon correlation, with history as the core of the school course. Some writers believe that the problem-project method is hindered to-day because teachers are not well trained enough to teach without textbooks. We probably must postulate textbooks as tools of instruction in our schools for some time to come.

teaching program with time for research and writing are important requisites for this task. But one thing—and that probably counterbalances the other qualifications—has defeated their efforts to write *suitable* textbooks; *namely, the fact that they have written them without contact with the elementary or high-school classes for which they are intended.*<sup>31</sup> This criticism will be considered in detail later in the chapter.

It is commonly stated that the four “blocks” of history, recommended by the Committee of Seven in 1899 and again recommended by the Committee of Five in 1912 (both committees appointed by the American Historical Association), have comprised the course of study that four-year high schools until recently have followed. The Committee of Seven recommended Ancient History for the first year, Medieval and Modern History for the second year, English History for the third year, and American History and Civil Government for the fourth year. The Committee of Five simply changed the second and third-year courses, suggesting English History for the second, and Modern European History for the third year. A survey of 600 high schools in 1914 substantiates this statement; it shows almost all of them to be following this four-block scheme:<sup>32</sup> 510 offered Ancient History; 456, European History; 348, English History; and 473, American History. Schools reporting grade placement in the four-year high schools in these subjects are enumerated in Table II.<sup>33</sup>

TABLE II

	First Year		Second Year		Third Year		Fourth Year	
	Re-quired	Elec-tive	Re-quired	Elec-tive	Re-quired	Elec-tive	Re-quired	Elec-tive
Ancient History.....	198	93	133	59	18	5	3	1
European History.....	18	3	179	96	92	60	5	3
English History.....	31	11	39	22	103	118	11	13
American History.....	11	3	11	2	52	19	305	70

<sup>31</sup>If one wishes still further evidence that such recommendations have materially helped to determine the content of present school courses in history and civics, we suggest a comparison of the names of the members of these committees with the authors of history textbooks that have been and are still being *used widely in American elementary and secondary schools*. The writer finds several such names. But we do not criticise the fact that these specialists have written textbooks. We simply state it here again because their textbooks *are* the courses in history and civics in literally hundreds of American schools to-day. Our criticism is that, in the main, these texts are not suited to the needs of children.

<sup>32</sup>Only 40 disregarded the block system entirely.

<sup>33</sup>Johnson, H.: *op. cit.*, page 150.

While we have no elaborate figures on the elementary-school courses in history, a comparison of the topics reported as taught in Grades I-VIII by Tryon<sup>34</sup> shows them to be very similar to those recommended by the Committee of Eight. Textbooks for these grades also follow rather closely the Report of this Committee.

While schools are teaching history by "blocks," or topics, this method of course-making has been based upon few valid criteria. Isn't one of the outstanding features of Table I the marked disagreement in the recommendations of these various committees? They seem even to ignore the crude results of past experience. Take any grade, for example the seventh, and what do you find? One committee proposes American history and civil government for this grade; another, English history; another, American history to 1789; another, geography and European history; another community civics; and still another, World history before 1607.

Why is there such a disagreement in grade placement? Because these men have never followed the steps of scientific procedure in curriculum-making. Their procedure has been chiefly this: group conferences of committee members, sending out of questions-blanks, a little personal investigation of what is taught in the schools, and correspondence with school administrators and teachers in which suggestions are requested. In no case have they written a course and taught it themselves under carefully controlled conditions, observing the teaching of it, measuring the results of its teaching by objective tests,<sup>35</sup> and comparing it with other types of courses, finally revising it once, twice or three times

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<sup>34</sup>Tryon, R. M.: "Materials, Methods and Administration of History Study in the Elementary Schools of the United States." *Indiana University Studies*, No. 17.

<sup>35</sup>Practically the only test results that historians furnish school people are *negative* ones—the high percentage of failures in history and civics of high-school pupils taking college entrance examinations—tests written by these specialists. The report of the Secretary of the College Entrance Board for 1920 shows that 63.8 percent of candidates taking the college entrance examination in Ancient History *failed* to pass and that 51.8 percent *failed* in American history (*i.e.*, *failed* to make the passing grade of 60). In 1921 and 1922 there has been a marked decrease in failures (see page 42 of the Annual Report of the Secretary for 1922). The report does not give the explanation for this decrease. Bell and McCullom report (*Journal of Educational Psychology*, Vol. 8, page 284) similar low test results. Thirty-three percent of the facts called for were retained by about 650 high-school pupils and sixteen percent by 550 pupils in Grades 6-8.



in the light of what one, two, or three years of actual classroom teaching shows to be suitable material for each grade. If you read carefully the curriculum investigations now under way described in other chapters of this *Yearbook*, and compare these methods with those of the Committees as written in their reports, you will note to what a marked degree the specialists setting up curricula for elementary and high-school pupils in history and civics have failed to follow the relatively objective methods of *investigation of what shall be taught*. The method of investigation demands not only that hypotheses be established,<sup>36</sup> but also that the other steps be taken; namely, an inquiry into children's needs both as pupils and as adults; and a search for subject matter that will meet these objectively determined needs. Finally, it demands that careful measurements of the results of teaching such proposed courses be made.<sup>37</sup>

#### AMERICAN SCHOOLS ARE NOW TEACHING SOCIAL SCIENCES—A BROADER CONCEPTION APPEARS OF WHAT CITIZENSHIP TRAINING IS

Does not the evidence presented thus far indicate that up to about 1912 to 1914 history occupied the dominant place among those subjects commonly thought of as contributing to the preparation of pupils for citizenship? While, as we have pointed out, certain types of civics and even economics were taught, it was rare to find them offered as *independent* courses. Again and again the historian insisted that such subjects could be best taught in connection with history. The inclusion by the historians of more political history to provide for *civic* instruction and an equal increase of economic topics like banking, manufacturing, agriculture, and transportation in history texts to provide for *economics*, show that they were aware of the struggles of these new social sciences for a place in the curriculum. They realized that if they were to

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<sup>36</sup>All committee reports abound with theories and proposals, but unverified hypotheses are of little value. They are the first steps, but not the final ones.

<sup>37</sup>For a detailed criticism and evaluation of committee procedure, see Rugg, H. O.: "Needed changes in the Committee Procedure of Reconstructing the Social Studies." *Elementary School Journal*, Vol. 31, pages 688-702.



combat these courses, their texts must include much more of this type of subject matter.<sup>38</sup>

Several movements led by those interested in the other social sciences as well as by students of education explain to a large extent the fact that to-day one hears about the teaching of the social studies rather than the teaching of history.<sup>39</sup> What conditions brought about these new types of curricula? To answer this question one must go back fifty years to the origin of another social science, sociology, the study of society in its broader aspects. In 1859, Herbert Spencer, a great English educator, published an epoch-making essay on the subject of the curriculum. It was entitled: "What Knowledge is of Most Worth?" In this essay he listed five kinds of material that a child should study in order to be ready for complete living: "1. Those activities which directly minister to self-preservation" (health); "2. Those activities which, by securing the necessities of life, indirectly minister to self-preservation" (vocational efficiency); "3. Those activities which have for their end the rearing and discipline of offspring" (preparation for parenthood); "4. Those activities which are involved in the maintenance of proper social and political relations" (*citizenship training*); "5. Those miscellaneous activities which make up the leisure part of life" (preparation for wise use of leisure).<sup>40</sup>

To provide for No. 4, training for citizenship, he pleads for a course which he calls "descriptive sociology." Its subject matter is to be drawn from the broad materials of history, economics, political science, sociology, psychology, and anthropology. The curriculum-maker to-day must select from this ever-increasing mass of material governing our political, industrial, and social life, the content that will acquaint the pupil with life's crucial social activi-

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<sup>38</sup>See tables in the appendix, showing the percentage of space devoted to political, social, and economic material, to substantiate this statement.

<sup>39</sup>The report of Professor C. O. Davis on citizenship training based upon a question blank investigation of 1,180 North Central high schools, 1919, is the first significant report to indicate this widening concept of citizenship training. See *School Review*, vol. 28, pages 263-282. Compare with the report of Professor H. H. Moore, quoted in the *School Review*, vol. 28, pages 256-257.

<sup>40</sup>Spencer, H.: *Education*, page 18, A. L. Burt Company, New York.

ties and modes of living. In addition, he must provide pupils with practice in constantly thinking about, and drawing conclusions from, contemporary problems and issues. He must also make use of the necessary history and geography. Herbert Spencer's inquiries seventy years ago made us conscious of this task.

Fourteen years later Spencer published his *Principles of Sociology*. From about that time on, a small group of college men interested themselves in this new subject—the study of society. Chief among these new social science workers were Professors Lester F. Ward and Albion W. Small. Their contribution was the organization and systematization of a vast body of material in this field.

The industrial transformation of America between 1880 and 1900 made leaders of educational reform aware that our courses whose task was to prepare for citizenship must be so broadened as to relate more closely to a changing America. A large city population, transportation and communication systems connecting all parts of the continent, rapid growth of large-scale business, an awakened and powerful labor movement—all these and other factors influenced educators to work for a broadened school curriculum.

In the late 'nineties a new interpreter of education appeared, Professor John Dewey. He believed that the public schools were our chief remedy for the defects of the modern industrial nation that America had come to be by 1900. He studied our schools and found in them serious defects, particularly in so far as they were doing the task allotted to them—preparing pupils to take their proper places in a democracy. Through experimental work with children, Dewey evolved a new philosophy of education. He strongly emphasized the school as a miniature society, so simplified that a pupil by living in it as a citizen could constantly practice citizenship, and thereby learn to know the implications of this term when he became an adult citizen and a factor in the government of his country.

He destroyed the conception that the school only *prepared* for a citizenship that came years afterwards by providing an environment whereby the child actually got practice in *being a citizen* day after day and month after month.

He emphasized social efficiency as the primary aim of education. This was to be gained by actual participation—experiences in the life of a miniature society, in this case the school. “Education, therefore, in Dewey’s conception, involves not merely learning, but play, construction, use of tools, contact with nature, expression, and activity, and the school should be a place where children are working rather than listening, learning life by living life, and becoming acquainted with social institutions and industrial processes by studying them.”<sup>41</sup> He saw that citizenship meant cooperation and mutual helpful living, and that pupils could be made ready for the responsibilities of citizenship only by giving them practice in meeting obligations daily. He emphasized the necessity of affording pupils opportunity to develop leadership and “followship,” to make judgments as to what is good and what is bad. His aim was to stimulate each pupil to want to bear his fair share of the load.

The influence of the sociologist and the social efficiency aim of Dewey was reflected in new types of school textbooks in social science that began to appear in the early 1900’s. In 1907 Mr. A. W. Dunn published a little text entitled: *The Community and the Citizen*. This book presents in a vivid, concrete way the activities of a modern community. In his introduction the author defends the book by quoting from Professor Dewey and specifically acknowledges the influence of Dewey and of the sociologists, Professors Small and Vincent. The book is written to illustrate the broader concepts of citizenship training. It places emphasis upon the socializing value of a first-hand study of one’s own community by means of excursions, debates, investigation of community activities, etc.<sup>42</sup>

This book was epoch-making in several ways. First, it widened the concept of what civics courses should teach. (The old machinery-of-government and study-of-the-constitution types of civics were replaced by community civics.) Even advanced civics books decreased their space allotted to forms of government and increased

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<sup>41</sup>Cubberley, E. P.: *Op. cit.*, page 360.

<sup>42</sup>The book is based upon courses of study descriptive of various community activities in two communities where Mr. Dunn taught; Galesburg, Illinois, and Indianapolis, Indiana.

the space given to descriptions of the services of government and to civic problems. Second, it stimulated many other communities to work out courses adapted to their own particular city or town. Third, it led to the creation of a very influential committee, the N. E. A. Committee on the Social Studies. This committee made its final report in 1916. (See Table I for its recommendations.) An analysis of the report shows to what extent Mr. Dunn's ideas found acceptance.<sup>43</sup>

This committee brought about several important changes in our social-science curricula. (1) It recommended that ancient and medieval history be combined and taught in one year instead of the two-year period insisted upon by the historians. Textbooks covering this combined course appeared. Their increasing adoptions throughout the country indicates that this recommendation is rapidly being put into practice. (2) It recommended a twelfth-grade course in "Problems of Democracy." Textbooks for this course have only recently appeared, but the history of the introduction of new school texts would lead one to conclude that the course will be taught in many schools in the near future.<sup>44</sup> (3) It gave an increased emphasis to civics and to other social sciences. The Committee on History and Education for Citizenship, 1918-1921, instead of demanding history in all four years of the high school, allotted two years, the 9th and 12th grades, to other social sciences.

#### THE WORLD WAR STIMULATED INTEREST IN THE SOCIAL STUDIES

We have pointed out earlier in this chapter the increased emphasis given to citizenship training as a result of America's entering the World War in 1917. One of the most significant examples of war work that affected the schools was the publication by the government of *Lessons in Community and National Life*. These

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<sup>43</sup>A considerable portion of the report is given over to a description of community activities similar to those described in Mr. Dunn's book. Note also that the report is chiefly the work of *school administrators and teachers closely in touch with the needs and experiences of children*.

<sup>44</sup>Two states, New Jersey and Pennsylvania, now require this course. It is significant that the last report of the Committee on History and Education for Citizenship included both the combined ancient and medieval course and the "Problems of Democracy" in their program.



lessons were written, under the direction of Professors C. H. Judd and L. C. Marshall, by various teachers and specialists of the social sciences. They were a part of the war "programs" of the United States Food Administration and the United States Bureau of Education.

The government wished to teach the necessity of conservation and increased production during the war. These lessons, then, were an attempt to illustrate by descriptions of important community and national activities what conservation meant and to give pupils a background of fundamental political, social, and economic institutions.

The important feature of these new materials of instruction is their concreteness. Instead of condensing into a paragraph or two several relatively abstract facts or conclusions about community life, they discuss a given topic for several pages. For example, the concentration and integration of modern business is explained to pupils by describing in three different lessons how it actually happened in some of our "key" industries, such as steel, railroads, and meat-packing. Government is similarly treated by illustrations of how custom controls society, and by examples of the typical services of our government. Historical material is included to give the pupils the necessary background of modern community life. Geography is also used to illustrate how certain aspects of our life to-day depend upon soil, climate, hinterland, etc.

These "Lessons" have been used widely in our schools chiefly as supplementary reading materials. They have influenced the social-science curriculum by the new subject matter that they have introduced and by their simple concrete method of presentation.

#### INNOVATING TYPES OF TEXTBOOKS ALSO INDICATE WIDENED SOCIAL-SCIENCE CURRICULA

The evidence thus far presented shows that the adoption of new courses or changes and reorganization of existing courses in what we call the social sciences are contingent upon the availability of suitable textbooks. With a large proportion of our elementary-school teachers having at most only a high-school education or a few weeks of normal-school training in addition, and



with teachers in the average high school (of 100 or 250 pupils) forced to teach several different subjects, we cannot expect to find teachers ready to "try" new courses unless a detailed textbook can be placed in their hands.

Within the past few years one of the most significant things is the activity of scores of progressive classroom teachers in the direction of experimentation on new types of materials and new methods of presentation.<sup>45</sup> It is highly significant to the progress of reorganizing our citizenship courses that this work is being done chiefly in the classroom, with pupils, and that textbooks embodying the results of these trials and experiments are written by teachers cognizant of classroom conditions and of the needs of pupils. These books, while not always representing scientific methods of curriculum-making, are, nevertheless, distinct improvements on texts written apart from the classroom and based upon *a priori* syllabi of committees.

The limit of space prevents further comments upon these books. Representative examples are summarized in Table III. The reader interested in the reconstruction of the social-science curriculum would do well to examine books such as are represented in Table III, and in addition the new proposals and examples of curriculum-making in other chapters of this *Yearbook*.

Do we have a broader kind of social-science curriculum to-day? The answer is, Yes. The most encouraging evidence is the report of what this citizenship training in the schools actually consists. The reading courses in all social sciences and the increasing emphasis upon the extra-curricular activities of the school, as indicated by Prof. Davis' investigation, show that American schools are more nearly approaching the task of citizenship training that educational leaders for years have sought.

A brief comment on the activity of many groups and organizations that are at present making proposals for courses in the social sciences ends our description of how the current courses came to be what they are. A year ago about ten different organizations had committees actively at work on "programs" and recommenda-

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<sup>45</sup>See the files of the *Historical Outlook*, a monthly magazine for social-science teachers, for descriptions of such experiments.

TABLE III

## INNOVATING TYPES OF SOCIAL SCIENCE TEXTBOOKS AND SYLLABI

A. *Innovating Types of Textbooks*

Author	Title of Text	Place and Date of Publication	Type of Content	Descriptive Comment
Ashley, R. L.	<i>The New Civics</i>	The Macmillan Company, New York, 1920	Civics	Emphasizes the services of government, also citizenship; "the youthful citizen should know how society is organized and what he should do for society as well as what it does for him."
Dole, C. F.	<i>The New American Citizen</i>	D. C. Heath & Co., Boston, 1918	Civics, Economics	The theme of this book is the ethics of good citizenship. The book is to be used as a basis of studying about civic activities that will make pupils useful citizens.
Dryer, C. R.	<i>Elementary Economic Geography</i>	American Book Company, New York, 1916	Economic and Commercial Geography	Facts and principles of industry and business organized and presented by explaining their geographic basis; it is "a study of the ways in which different peoples get their living."
Ellwood, C. A.	<i>Sociology and Modern Social Problems</i>	American Book Company, New York, 1919	Sociology, Economics	Aims to illustrate the chief factors of social organization. Concrete social and economic problems are presented to make clear this aim.
Giles, F. M. and I. K.	<i>Vocational Civics</i>	The Macmillan Company, New York, 1919	Civics	Intended to acquaint pupils as a part of their civic training with the facts about, and opportunities in, various vocations; a concrete study of American industries and occupations.
Hill, H. O.	<i>Community Life and Civic Problems</i>	Ginn & Company, Boston, 1922	Civics	A combined community civics and social problems textbook for junior high schools. Written by one in intimate touch with school children, taught in mimeographed form in several schools and revised in light of the suitability of the material to children of that age.
Judd, C. H. and Marshall, L. C.	<i>Lessons in Community and National Life.</i>	Bureau of Education, Washington, D. C., 1918	Social Science	Three series of lessons: Series A, for the Senior High School; Series B, for the Junior High School; Series C, for the Intermediate grades. They contain many concrete examples of industrial and community life and lessons dealing with the history of industry, business, and government.
Marshall, L. C. and Lyon, L. S.	<i>Our Economic Organization</i>	The Macmillan Company, New York, 1921	Economics	A new type of economics for the senior high school. Instead of economic theory it presents the distinguishing features of industrial life and discusses them as important community activities.
Tabor, C. W.	<i>The Business of the Household</i>	J. B. Lippincott Company, Philadelphia, 1918	Economics, Civics	This book contains content dealing with the household that boys as well as girls should study. Practical, concrete economics of the household is urgently needed in social-science courses.
Thompson, C. M.	<i>History of the United States Political, Industrial, Social</i>	Benj. H. Sanborn & Co., Chicago, 1917	Economics, History	A new type of history text, aiming to include both political and economic history so as to give pupils "a well proportioned view of American life." A departure from the usual school history in its presentation of the subject topically.

TABLE III—(continued)

Author	Title of Text	Place and Date of Publication	Type of Content	Descriptive Comment
Thompson, O. M.	<i>Elementary Economics</i>	Benj. H. Sanborn & Co., Chicago, 1919	Economics	An attempt to explain economic principles by illustrations from everyday experiences and to describe industrial activities and problems by pointing out their relation to the life needs of high-school pupils.
Towne, E.	<i>Social Problems</i>	The Macmillan Company, New York, 1917	Sociology	A discussion of social problems. Aims to indicate the facts about many of our social problems and activities with a view to acquainting pupils with these aspects of society.
Tufts, J. H.	<i>The Real Business Of Living</i>	Henry Holt and Company, New York, 1918	Sociology, Economics	The title, the author says, means doing one's work in the world. The book deals with material designed to point out the nature of our society and the responsibilities attendant upon citizenship in a democracy.
Turkington, G. A.	<i>My Country</i>	Ginn and Company, Boston, 1918	Civics	Aims to create a background which will develop a true spirit of patriotism. It is most important, the author states, "to give elementary school pupils a conviction that America is . . . a nation that really looks to them to-day to help in its building and that patriotism means making the most of every opportunity that this land affords."

**B. Innovating Types of Syllabi for Teachers**

Dunn, A. W. and Harris, H. M.	<i>Citizenship in School and Out</i>	D. C. Heath & Co., Boston, 1919	Civics	The syllabus has as its purpose to provide actual civic training to boys' and girls. A description of actual activities of children is the point of departure and the principal medium of civic training.
Tuell, H. E. and Latourette, K.	<i>The Study of Nations</i>	Houghton Mifflin Company, Boston, 1919	Modern History	A syllabus that outlines a distinctly novel approach and treatment of modern history. The method is topical and problematic, endeavoring to portray modern history as international civics, to give American boys and girls training that will explain to them world history and their relation to it.

tions. The efforts of a recently organized "National Council For the Social Studies" to bring about the cooperation of all these organizations, as well as the specialists, the teachers, school administrators, and students of education, are already showing results in the willingness of these groups to work together. This fact promises that the social sciences will increase in influence and strength.

Other chapters in this *Yearbook* describe the other significant tendency in the social sciences, namely, experimental procedure in the making of these curricula.

#### SUMMARY

This chapter has attempted to trace how the current courses in social science came to be what they are. It has presented the facts relative to the origin of these courses and the reasons that such subjects were included in the curriculum. It has tried to emphasize committee procedure as the dominant feature of curriculum-making. It has commented on the expansion of the concept of citizenship training from one of rote memory of the History and Constitution of the United States to one that seeks not only to provide a wide variety of reading courses in social sciences but also to afford opportunities for the exercise of initiative, judgment, and pupil participation in school activities, suitable to the age and maturity of students.

## SECTION II. TYPES OF REORGANIZED COURSES IN THE SOCIAL STUDIES

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### CHAPTER V

#### AN INTRODUCTION TO SOCIAL STUDIES

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This statement concerning "An Introduction to Social Studies" is concerned mainly with that work at the level of the seventh and eighth grades. In order that as much space as possible may be given over to illustrative material, the writers ask that the material in the chapter on "Introducing Social Studies into the School Curriculum" (see Chapter II) and "The Proposal of the Commission of the Association of Collegiate Schools of Business" (see Chapter III) be regarded as a part of this statement.

The illustrative material which makes up the bulk of this present chapter has been prepared in terms of the following assumptions:

1. It has been assumed that the function of the social studies in the public school curriculum is substantially indicated thus:

"Their purpose is that of giving our youth a realization of what it means to live together in an organized evolving society; an appreciation of how people have lived and do live together; and an understanding of conditions precedent to living together well, to the end that our youth may develop ideals, abilities and tendencies essential to effective participation in a dynamic society."

2. It has been assumed that an "introduction to social studies" suitable to seventh grade use is no proper place for riding the hobbies of any *one* of the specialized social sciences, such as history, political science, economics, geography or sociology. It should be a *preview* of the whole territory of social studies. It should be a preview, however, which is presented with a full recognition of



the distinctive contribution made by each of the specialized social studies. It should aim to give the pupil some such real sense of continuity and change as history provides: some such real sense of economic organization, of social control, of group activities, and of physical environment as are conferred by the study of economics, government, sociology, and geography, respectively. In other words, it should be a *scientific preview* and not a mere collection of factual material.

3. It has been assumed that the material presented should be selected with the aim of enabling the child to see the great fundamental relationships involved in the process of living together and to see the factors involved in living together well. In other words, it is again emphasized that a mere collection of factual material will not suffice. The facts must be presented in terms of basic relationships.

### A PROPOSED TABLE OF CONTENTS

In the light of these three assumptions the character of the material becomes almost self-evident from a survey of the following proposed table of contents of seventh-grade material:

	Percent of total space
PART I. INTRODUCTION	1
CHAPTER	
I. MAN'S PLACE IN THE GREAT CURRENT OF LIFE	
PART II. MAN IN SIMPLE GROUPS OR SOCIETIES	12
II. NEANDERTHAL MAN—THE MERE BEGINNINGS OF TOOLS AND COMMUNICATION	
(His wretched mode of living as related to inadequate tools, both physical and mental)	
III. THE IROQUOIS: THE BENEFITS OF TOOLS, COMMUNICATION, AND SOCIAL ORGANIZATION	
a) Introduction: Iroquois as an Example of Neolithic Culture	
b) The Iroquois as Tool-Makers and Harnessers of Nature (in Shelter-Making, Hunting, Fishing, Agriculture, Domestic Arts)	
c) The Iroquois as Communicators (Speech, the Forerunners of Writing, Transportation, Trade, Beginnings of Money)	
d) The Iroquois as Team Workers and Planning Organizers (Social Organization as Seen in Family, Clan, and Village)	

Life; in Tribal and League Government; in Division of Labor; in Religion and Other Agencies of Social Control; in Property Rights; in Play and Recreation)

PART III. MAN THE HARNESSER OF NATURE: 25  
MULTIPLICATION OF MAN'S POWERS

- IV. FIRE AND THE METALS AS PHASES OF MAN'S HARNESSING OF NATURE
- V. POWER AND THE MACHINE AS OTHER PHASES OF MAN'S HARNESSING OF NATURE
- VI. SCIENCE, THE CREATIVE STAGE OF MAN'S HARNESSING OF NATURE
- VII. THE HARNESSING OF NATURE AND LIVING TOGETHER WELL

PART IV. MAN THE COMMUNICATOR: FURTHER 25  
MULTIPLICATION OF MAN'S POWERS

CHAPTER

- VIII. SPEECH AND WRITING AS MULTIPLIERS OF MAN'S POWERS
- IX. THE MULTIPLICATION OF COMMUNICATION (PRINTING, TELEGRAPH, TELEPHONE, WIRELESS)
- X. COMMUNICATION BY TRADE AND TRANSPORTATION (INCLUDING MONEY AS LANGUAGE OF TRADE)
- XI. PASSING ON THE TORCH (THROUGH FAMILY, CHURCH, AND SCHOOL)
- XII. COMMUNICATION AND LIVING TOGETHER WELL

PART V. MAN THE TEAMWORKER AND 25  
CO-OPERATOR; SOCIAL ORGANIZATION

- XIII. THE EXPANDING CIRCLES OF MAN'S GROUPINGS (EMPHASIS UPON FAMILY AND POLITICAL GROUPS)
- XIV. THE CO-OPERATION OF SPECIALISTS THROUGH EXCHANGE
- XV. COMPETITION AND PRIVATE PROPERTY AS ORGANIZING FORCES
- XVI. THE MANY FORMS OF SOCIAL CONTROL (EMPHASIS UPON LAW AND GOVERNMENT)
- XVII. SOCIAL ORGANIZATION AND LIVING TOGETHER WELL

PART VI. MAN THE IDEALIST AND ASPIRER 12

- XVIII. KNOWLEDGE AND RESEARCH
- XIX. ART AND MUSIC
- XX. LIBERTY, JUSTICE, AND FULLER LIFE FOR ALL

It is worth noting that a distinct break occurs in the table of contents. Parts I and II (about 15 percent of the total space) are in some real sense introductory to the later parts. Part II, for

example, is nothing but a study of type cases of two simple societies. This study is made in order to enable the child to see fundamental relationships in societies sufficiently simple to let him get these relationships as tools of thought. This having been done, in Parts III, IV, V, VI, these relationships are taken up, in order, for more careful examination, and for examination with particular reference to our living together well to-day and in the future.

The spirit behind the treatment of Chapter II of the foregoing Table of Contents is reflected in the following sample taken from the closing pages of that chapter.

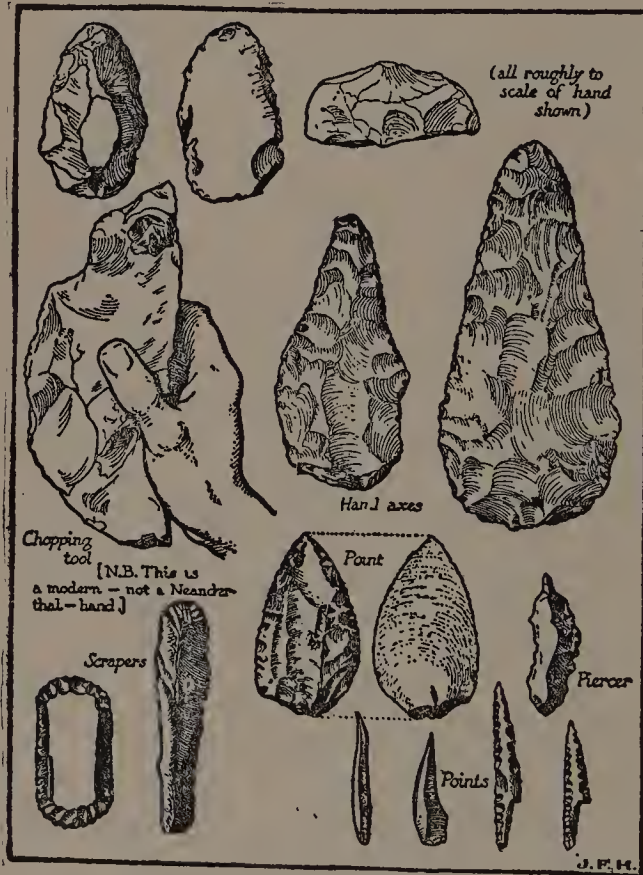
#### SAMPLE FROM PROPOSED CHAPTER II

*This account makes us realize how far man has climbed.*—Let us think back over this account of the life of Neanderthal man and get from it and from other evidence, certain general ideas concerning his life. These generalizations will help us to make some comparisons with the way we live to-day.

1. Let us begin by noticing how ineffective he was in getting his shelter, food, and clothing. As far as we can judge, in the preglacial period he had little more shelter than most wild animals have in their forest lairs. Quite likely he knew enough to break off branches and make rude dens in caves or by the sides of cliffs, but there is no reason to suppose that he could build a shelter anything like as good as the house the beaver makes. And, without the protection of good shelter, how he must have trembled at the threatening sounds of the huge animal life surging and crushing about him. Even when the glaciers, creeping down from the north, brought on a semiarctic climate, cold and damp, he could not build houses. He sought shelter under overhanging cliffs, and chatteringly disputed with the animals for possession of such natural shelter as caves afforded.

His plight with respect to food was no better. He grew no fruits nor vegetables. He did not raise crops of any kind. Such a thing did not occur to man for thousands of years after his time. He ate such plant products as he found growing wild, and these were wretched specimens when compared with our cultivated fruits and vegetables of to-day. He had no domestic animals—not even the dog—so that he raised no food by having herds. A hunter he was, but an ineffective one, for his weapons were puny and feeble against all fair-sized game and against all swift game. Very likely he had clubs and sharp sticks and he certainly had hand hatchets of

flint, but it is not likely that he had learned to "haft" spears and axes by attaching his flints to handles. Bows and arrows he had not. It is not even likely that he had the fish-hook, and almost certainly, he had no nets. It is just barely possible that he knew how to dig trenches—at what cost of painful handscratching of dirt!—to snare mammoths, and if this is really true, one can imagine these yelling forerunners of ours standing on the edge of the ditch and working for hours even to kill the giant they had trapped.



#### EARLY STONE IMPLEMENTS

(Taken from Wells: *The Outline of History*.)

The top row shows stone implements of what was probably Sub-man; the second and third rows show implements of Neanderthal man. Neanderthal man probably did not know how to attach handles to his tools. They were "hand tools." The bottom row shows implements of the successor of Neanderthal man. You will notice that they are much smaller and much more delicately made.



In the main, you see, they had to depend for their food upon very uncertain means. They were almost certainly hungry for more of the time than they were well fed. And such food as it was! If it was cooked at all, it must have been by cooking it in the ashes, for they had no pots or other cooking vessels. And its eating was certainly not attended by any use of such tools as knives and forks, and not blessed with anything that we should recognize as table manners.

As for clothing, anything better than rough, unsewn skins of animals, poorly cured by drying them in the sun, never entered their heads. Any such thing as cloth came thousands of years later, and even animal skins could not have been very plentiful in view of the wretched character of the hunting tools.

You would not wish to have such meager and uncertain food, clothing, and shelter.

2. His mental tools, as represented by words and speech, were as poor as his physical tools, as represented by stone hand-hatchets and clubs. Have you ever realized how important words—speech—are to you in trying to think? They are the tools of thought. You are proving this fact when thoughts rise to your mind as you read the words of this book. Early Neanderthal man had few words, and his lack of words limited his power to think, just as his lack of bows, arrows, and guns limited his power to kill game. Such thoughts as he had were passed on to others by gestures, grimaces, and by some few words. Of course, they could not make many plans together under such circumstances, and of course this lessened their "team-work" and so handicapped them in getting food, clothing and shelter, and indeed, in all their "living together." Just compare their ability to communicate with one another, to plan together, to talk things over, to teach one another, with what we have to-day. We have not only speech, but writing, and we have books, newspapers, telephones, schools, churches, movies, and a host of other "thought quickeners" and "plan transmitters." We can really "work together" fairly effectively.

You would not wish to be without our modern speech and means of communication.



Dagger of a California Indian with a grip made by binding around the stone dagger a long strip of otter skin. Probably Neanderthal man did not even make such grips.



3. In such matters as health, recreation, government, and religion, Neanderthal man was as pinched as he was in getting the necessities of life, food, clothing, and shelter. We should have to guess so much about his recreation and about what we would call his religion and government, that we shall wait to study such matters until we take a snapshot of a much more advanced savage life that has actually been seen by modern writers. But we know what must have been the state of affairs as regards the health of Neanderthal man. It must have been wretched. No doctors, no hospitals, no knowledge of what caused sickness, or what to do about it—and this in the midst of a situation full of dangers to life and limb, and full of causes of sickness. Cold, damp, arctic cave life, with poor food and clothing do not make healthful surroundings, and it must have been anything but a safe occupation to have hunted the animals of that time with the weapons at man's disposal.

You would not wish to have your health safeguarded as poorly as was that of Neanderthal man.

4. And now we come to the most important generalization of all. He lived as safely and well as he did, largely because he had at least begun to use tools—to harness nature and to make it do his bidding. You will find, as we go on in this book, that man's climb can be told—it is only one way of telling it—as a story of man's increasing power to harness dame Nature—and you are now seeing the beginning of this harnessing.

He did have fire, and that fact saved him when the glaciers came. How man originally got fire we cannot be sure. Perhaps he got it from volcanoes. Perhaps he got it from some burning forest tree which had been kindled by lightning. Perhaps he got it from nature in some other way. Whether Neanderthal man knew how to "make fire" is uncertain, but some writers believe that he was able to do so by striking iron pyrites—a kind of iron ore—together and letting the resulting sparks fall in a handful of dry grass. This much we know: the dead embers of his fires have been found in his caves along with his crude tools and with the bones of the animals he ate. And fire meant life for him and a chance for the race to improve. It was a first step in harnessing nature.



This shows an Eskimo striking fire with two pieces of pyrite. In the hand at the right you can see one piece of pyrite just under the thumb. Under this pyrite is held some dry tinder upon which the sparks are to fall.

And he did have clubs and sticks and crude stone tools, even if he did not join them together and make arrows and axes with handles. What he did have was at least a beginning, and in a

very real sense, his tools are the forefathers of all the wonderful tools and machines which to-day help us so much in our living together.

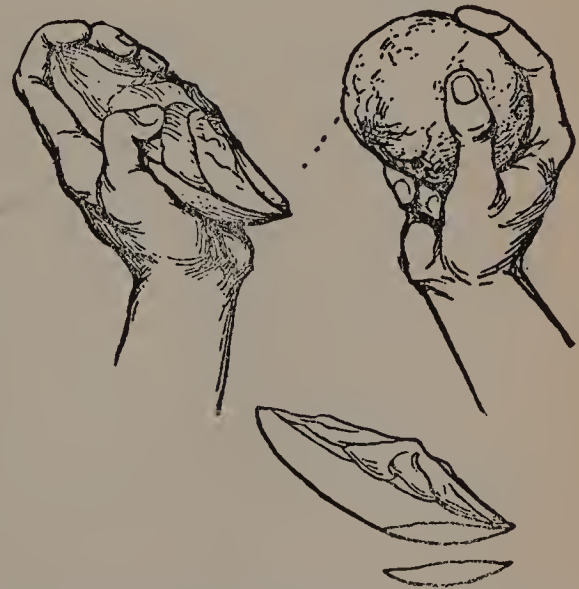
His stone tools were made of flints which, as you know, will often break in such a way as to leave a sharp cutting edge. Very likely man's first stone "tools" were just conveniently-shaped stones which he found and which he did not "make" at all. But our Neanderthal man had reached the point

This shows the first step in making a thin blade by percussion. Flakes are taken off all around the stone.

of *making* these stone tools and that was no slight advance, as you will soon come to believe if you try to make some yourself. They are by no means easy to make.

The stone tools of Neanderthal man may seem very crude and ineffective to us but we must remember that these tools *did* enable him to kill some animals, to crush bones for the marrow, to skin animals and to scrape the skins, to hack clubs and sticks into shape, and, in general, to do more than could be done with the bare hand. This was progress—great progress.

But you would not wish to be dependent for your progress upon such crude tools.



This shows the beginning of the shaping of the other side of the boulder.

## SAMPLE FROM PROPOSED CHAPTER III

The attempt to lead the child to generalizations concerning what is involved in living together well is illustrated in the following selection from proposed Chapter III.

**b) The Iroquois as Tool-Makers and Harnessers of Nature**

(In Shelter-Making, Hunting, Fishing, Agriculture, and Domestic Arts)

*The Iroquois lived in a very favorable physical environment.*—The region in which they lived, as you know from your study of geography, was well fitted to serve the three main pursuits of the Iroquois—fishing, hunting, and agriculture—which they had learned in their earlier living. The region abounded with lakes and streams which fairly teemed with fish. So plentiful, indeed, were the fish that the early French explorers tell us of a single fisherman harpooning as many as three hundred eels in one night's fishing. Then, too, it was a hilly region whose forests of maple, pine, ash, spruce, elm, oak, and other noble trees sheltered moose, deer, beavers, bears, rabbits, squirrels, pigeons, ducks, geese, turkeys, and dozens of other representatives of wild animal and bird life. The wild plant life was equally abundant and provided, in the way of food, such things as acorns, hickory nuts, chestnuts, walnuts, cranberries, strawberries, raspberries, grapes, pawpaws, whortleberries, may apples, crab apples, and many edible roots. The forest yielded, too, the raw materials of such crude "manufacturing" as they engaged in. The various trees gave the materials for canoes, snow-shoes, bark barrels, bark baskets, la crosse sticks, and many other implements. The inner fibers of the elm and moose wood, together with the wild hemp, gave material for coarse thread with which to supplement vines, animal tendons, and strips of skin as binders and lashings. Reeds from which mats could be made were abundant, and the skins of animals could be fashioned into clothing. The fertile valleys and hillsides gave good locations for raising the corn, beans, squashes, and melons which were their main agricultural products. As one thinks back over the many ways in which nature helped these people, one begins to understand what is meant by saying that the physical environment is very important in determining whether men can live together well. Climate, soil, plants, and animals are very important to man.

*The Iroquois harnessed nature in providing shelter.*—When we read about Neanderthal man we saw that it was also very important, if man was to live well, that he should have tools, that he should be a harnesser of nature. Let us look at the various im-



plements or tools which the Iroquois had and, first of all, let us look at their shelter.

The Iroquois called themselves "Ho-de-no-sau-nee" or "People of the long house," and the name was well chosen. When the Iroquois built a house, they set upright in the ground two rows of long hickory saplings, from which the bark had been stripped. These rows might run for eighty or one hundred, or even more, feet and they were from eighteen to thirty feet apart. The saplings, which had been set opposite each other in pairs, were then bent over toward each other so as to make a long series of arches. The builders then lashed split poles lengthwise on these uprights much as we to-day put laths on the uprights of a frame house. Then they lashed great slabs of bark on this framework of the wall and roof, leaving an open space about a foot wide at the crown of the roof so that the smoke of their fires could get out. These slabs of bark were nice and flat because they had been stripped from trees a long time before the building was begun, and had been placed in piles under heavy weights to dry. Outside this covering of bark were lashed still other upright poles so that the whole was really quite strong and rigid. They used lashings because they had no metals and therefore no iron nails.

Such partitions as they wished to make inside the houses were built of the same material, or were made of animal skins. These partitions did not reach clear across the long house. An open passageway about six feet wide ran its whole length and in this passageway there was a fire for each compartment. For each fire there were two families, the fire being between them. This gave each family a sort of alcove which was from six to ten feet deep and from thirteen to eighteen feet long.



This shows the method of construction of the Iroquois barkhouse. Most of the houses were much longer than this picture shows. Several "families" lived in one "long house."

In some long houses a sort of seat or couch, made of poles and perhaps two feet high, ran along the wall, and this served for what we would call chairs and beds. Higher up on the walls there might be another wide shelf which served as a place to put utensils and households goods. At the very ends of the long house there might be a sort of a vestibule which could be used either as a storage place, or as a place for the young men to sleep, or for both purposes. Windows there were none, and of doors there were only

two, one at each end of the long house. Some doors seem to have been made of bark and to have had a crude sort of a wooden hinge. Apparently, others were just curtains of skins. Just above the door was a crude representation of an animal or bird from which the particular group living in that long house took its name. There were eight such groups (the scientific name is *gens* with the plural *gentes*) in the Iroquois tribes, classified in two divisions. The wolf, the bear, the beaver, and the turtle made up one great division; the deer, the snipe, the heron, and the hawk made the second. The Senecas, Cayugas, and Onondagas had all eight of these *gentes*; the Oneidas and Mohawks had only three.

It is easy to see that these long houses were fairly permanent shelters and that the Iroquois would naturally use in their fishing and hunting trips and on their war trails a more temporary structure. On these occasions they seem to have made a sort of a

THE INDIAN FORT—SASQUEHANAH



This shows a village with a palisade around the long houses. Some palisades were solid and had a platform around the inside upon which the defenders could stand. Notice the space in the center of the village for the council fire. There were no regular streets. It does not look much like any village you know. There are no schools, churches, waterworks, paved streets, electric lights, street cars, stores—just a cluster of dwellings.

triangular, tentlike affair, using for the walls branches of trees, or bark, or both, as might be most convenient.

As for the long houses, they occasionally stood alone, but much more frequently several of them were grouped together to form a village. The whole village was sometimes protected by a sort of



stockade, or palisade, made of logs. Such a village stronghold was likely to be located on a side of a steep hill near a stream of water. The hill and the stream gave them some protection against a sudden raid by an enemy and at the same time gave them the needed ready access to water. Once a village was made, it was likely to remain in the same place as many as ten or fifteen years, since it was not usually worth while to move unless the surrounding soil had become poor, or the game and fish scarce.

This description of Iroquois shelter may sound like an account of one of our pleasant vacation shelters. In the summer some of us get a good deal of enjoyment by going away from our noisy, complex city life and living simply, with few tools and few household utensils, in the woods. But when we do this, we live with a great deal more comfort than did the Iroquois. To begin with, they must have been a bit crowded in their homes. Here they kept their bark barrels of dried corn, nuts, and dried berries, and here they hung their strings of dried squashes and their braids of corn ears, the husks being used for the braiding. Here must be kept the skins, pottery, bows, arrows, war clubs, clothing, and playthings of the whole group. Fortunately, they had learned to construct outside the long houses fairly dry pits in which they kept such things as parched corn, beans, and acorns. Many of our farmers still use such a device, and in frontier life such a place for hiding or storing things for future use is called a "cache."

Quite aside from the crowding, there were other unpleasant features. With all their many good qualities, the Indians were not a very cleanly lot and the long house rather quickly became greasy, dirty, and smoke-smirched. In the winter time, indeed, the smoke was so bad that apparently it was not very comfortable to stand erect. Their couches did keep them off the damp ground, but they were not the only users of the couches; fleas and bedbugs were plentiful. This sort of a place, filled occasionally with the stench of fish being dried in the smoke of the fires, was not as pleasant a place to live in as your summer cottage.

*Appropriative, adaptive, and creative stages in shelter-making.*— But with all that, Neolithic man (as illustrated by the Iroquois) had far better shelter than Neanderthal man. This is as good a place as any to begin to understand what is meant by certain terms which show stages, or steps, in man's harnessing of nature. The terms which we shall need to understand are these: the *appropriative* period, the *adaptive* period, and the *creative* period.

Let us now illustrate these terms by talking of them in connection with man's shelter. As far as his shelter was concerned, Neanderthal man was in the appropriative period. The word

"appropriate" means "take." Man merely *took* what nature supplied him in the way of shelter and did nothing to improve it. This means that he sought shelter under bushes and in caves.

When Neanderthal man began to make a few improvements (as very likely he did) he was beginning the "adaptive" period. You can see that the word means that man takes things furnished by nature and *adapts* them, or modifies them, or works them over into better shape for his use. When Neanderthal man piled a heap of stones at the mouth of his cave to keep wild animals out, he was adapting, he was modifying nature. He had begun the "adaptive" period. Our Iroquois friends were distinctly in the adaptive period. They took bark and skins and poles and fashioned them into dwelling-places.

We shall not now stop to see all the steps by which men gradually passed into the creative period, which means that man is no longer content merely to appropriate or even to adapt. He *makes* or *creates* new fibers and substances—fibers and substances not found in nature, and from these fashions all sorts of things. In our house-building to-day, we are partly adaptive, but we are largely creative. We adapt with stones and lumber but we have created new substances in bricks, mortar, plaster, glass, and steel. Our modern houses and modern skyscrapers are, as a result, as far superior to the long houses of the Iroquois as these long houses were superior to the damp, dirty, smelly cave of Neanderthal man.

You will find as we go on with our study that what is true of our shelter is true of everything else and that these words, appropriative, adaptive, and creative, will come to mean much to you as you watch man in his long process of harnessing the forces of nature to do his bidding.

### ANOTHER SAMPLE FROM PROPOSED CHAPTER III

The foregoing sample is an illustration of the treatment of one fundamental social fact—the harnessing of nature. The following is an illustration of the treatment of "man the communicator." It is, in the original, pointed toward letting the student see that we are to-day vitally interested in good communication:

#### c) The Iroquois as Communicators

(Speech, the forerunners of writing, transportation, trade, and the beginnings of money)

*The Iroquois were great communicators.*—We have already seen that as far as communication was concerned, Neanderthal man was in a bad way. He could make faces, he could shrug his

shoulders, he could shake his fist; but he could not talk, or if he could talk, his words were so few that he had a very difficult time in his communicating. Of course the Iroquois had no such modern communicating devices as newspapers, telephones, telegraph, wireless, the post office, schools or churches, but they did have the tool of speech—they could talk—and this was very important. You can see how much it meant to them by the way they used it in their councils. Every important happening resulted in a council being called and at this council there was much talking and making of plans. It might be a council concerning whether to go on the war path against some other tribe; it might be a council to plan a big hunting or fishing expedition; it might be a council to elect a chief to take the place of one who had died; it might be for some other important purpose. Whatever the purpose, the council was to the Indian a very important thing. He never did anything worth while without it and he never had a council without much speech-making. The Iroquois, indeed, were known far and wide as great orators.

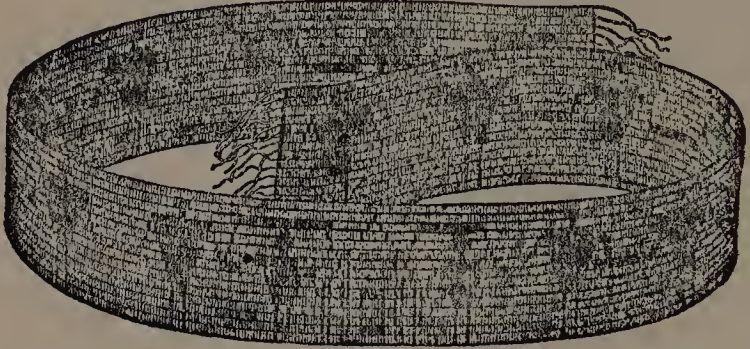
Another sign of the importance of speech as a means of communicating is found in the work of the story-teller. In every group there was quite certain to be someone who had come to be known as a good story-teller, and this story-teller was always certain of an interested audience. He recited to them all sorts of things: the Indian account of the way the world was made; stories of Indian gods or spirits; stories of the wise actions of chiefs either living or dead; stories of witches; stories of great events in the history of the tribe; stories of fact and stories of fancy. All were greedily heard. It was one of the most important ways by which the young people learned the wisdom of the tribe. Indeed, the story-telling was such a temptation that by tribal custom the story-teller was forbidden to tell his stories in the summer season (we say there was a *taboo* upon it) when there was much work to be done. He must confine his story-telling to the winter when work was not so pressing. It would be hard to find a clearer proof of man's love of talk than this.

But the Iroquois was not able to write. He had no alphabet and no writing as we understand that word. He did, however, do some things that among other peoples finally led to the development of an alphabet and to the development of writing. We cannot tell the story of the development of the alphabet at this time; that will come in chapter viii. But we can at this time see what the Iroquois Indians were doing that might have led to writing, had the white people not discovered them for a few thousand years.



Such things have led to writing among other peoples, as we shall see.

To begin with, there was their so-called picture writing. This means simply that they would draw crude pictures which told some story. A group on the war path, for example, might draw on a tree pictures which would tell their friends how many there were of them, what direction they had gone, and even what they had done to the enemy. In a village there might be a war post and there would be accounts of the wars on this post in picture writing.



This shows the George Washington wampum belt, commemorating the peace treaty between the Iroquois and the United States during the presidency of Washington.

One sign would mean a war, another sign  $\pm$  would stand for a scalp taken, still another sign  $\times$  for a prisoner taken alive; and so on. This war post would become, for those who knew what the signs mean, a written record of happenings. Longfellow, in *The Song of Hiawatha*, has a very interesting account of picture writing. Of course, one had to know what the signs meant, but so do you with these signs you are now reading. Our letters and words are, after all, merely signs that we have learned to understand.

They had a sort of wampum writing too. Now, this was really not writing at all. It was very much like your tying a string around your finger when you want to remember something important. Every time you look at the string it brings back to your mind that which you wish to remember. The Indians used wampum strings or wampum belts in just this way. The wampum bead was a piece of shell which had been perforated and made into a bead. Whenever an important thing happened in the history of the tribe, as for example when they made a treaty with some other tribe or later with the white man, they wove a lot of these wampum shells together in such a way that the persons who saw it done

would understand that the string or belt stood for really quite a long story. It was a kind of picture writing. Of course, what the belt meant could readily be forgotten unless people kept reminding themselves of the story. Accordingly, at some of their councils, the chief whose duty it was to keep the wampum records would rise in the council meeting with his belts and strings and would recite to the council the laws and treaties and happenings which were woven into these belts. In this way others learned what the belts stood for, so that such records were passed down from generation to generation.

The following will serve as an illustration of the treatment of another fundamental fact,—social organization. In the original it is preceded by much factual material and followed by still other illustrations of social control.

#### **d) The Iroquois as Team Workers and Planning Organizers**

(Social organization as seen in family, clan, and village life; in tribal and league government; in division of labor; in religion and other agencies of social control; in property rights; in play and recreation.)

*There was social control through government, custom, and public opinion.*—As we have seen, a group or society is made up of people who think and talk and act about the same things in much the same way—who have common interests. In every such group or society it always happens that what is done is very much controlled by the group. We call this *group control*, or *social control*.

There are many forms, or kinds, of social control. There is, for example, control by the government. It is clear that the great central league of the Iroquois had a sort of government and that it controlled in some very important matters, such as declaring peace or war. The same was true of tribal councils.

For the ordinary man, however, the group control that was most felt was that of his gens and village. As an illustration of how this worked out, let us see what happened when anyone needed punishment.

If one Iroquois killed another, the gens to which the murderer belonged must send a present of much white wampum to the gens of the victims. If this was not sent, the victim's gens would appoint an avenger who was to take the life of the murderer. This planning was, of course, all worked out through the usual councils.

If anyone became a traitor to the group or was supposed to practice witchcraft, he became an enemy of all and a council decided his fate. He might be executed, or he might be declared



no longer to be a member of the group. Such a declaration was almost equal to an execution, for then every member of the group was free to kill this enemy—this person who did not belong to the group. As is true of most early societies, any person who did not belong to the group was considered an enemy.

The punishment for lesser wrong doing, however, was usually worked out through what we call public opinion. The Iroquois, as is true of most savage peoples, did not change their ways of doing things very much as time went on. They kept on doing what had always been the customary thing. We say that they were ruled by tradition and custom. Their traditions and customs were very well known by all members of the group and anyone who disregarded them did wrong in the eyes of the group. His punishment came by feeling the scorn and anger of other members of the group. It is a little hard for us to understand this way of doing things for we are not so much bound by custom and tradition. We feel more free to experiment and to do things a little different from the way they have ordinarily been done. But even we are much bound by custom, and we know something about being punished by public opinion. You can name several things that you would not do because you would not wish to bring down upon yourself the dislike of your playmates. This feeling was very strong among the Iroquois and took care of many things that we to-day take care of by means of law and the policeman or by other means.

*There was social control through religion.*—The ordinary person was controlled in part by custom, tradition, and public opinion, as we have just seen. He was also controlled by religion. Let us see what that means.

It is very hard for us to understand the "religion" of a savage because it is hard for us to think of things in the way he thought of them. Let us think of his religion as his effort to understand the world about him. Let us remember that many things which we understand quite well were very puzzling to him—were "magic" indeed. For example, you and I know enough about lightning to know that it is caused by the same electricity which is in our electric light wires. Not so the savage! Some "spirit" must be behind the lightning! You and I know that germs cause diphtheria. Not so the savage! An outbreak of diphtheria must have been caused by angry spirits! The sun's regular rising must, to his way of thinking, be governed by a spirit. A falling meteorite must surely be a spirit with streaming, flaming hair! And so it went. The savage mind was full of fears and superstitions about the world in which he lived. But let us remember that his notions

about the world, strange as they seem to us, were his "explanations" of that world.

Apparently a great many of his "explanations" grew out of the fact that he often dreamed as he slept. In these dreams he seemed to see persons who were at the time far away. Some were, indeed, dead. He saw also animals, trees, etc. He, himself, in his dreams "went away from his body" to other places. Then, too, a fellow tribesman would occasionally fall in a fit (which seemed to the Indian a sleep from which he could not be awakened) and upon recovery he could sometimes tell of strange "experiences" while he "was away from his body." You can readily see how he arrived at his crude notions of his "soul," as we should say it, and that he could easily believe that animals, birds, fish, trees, rocks, and all other things which he saw in his dreams also had "souls." Since dreams seemed so important to them, it is not surprising that the Iroquois had a sort of "dream ceremonial" every year at which everyone must do all in his power to make any dream of anyone else come true, even to giving him all your property and sometimes even to committing murder, or at least pretending to do so. It is not surprising, either, that when a youth "came of age," he went to some quiet place to fast, hoping that he would see in his dreams some animal that would from that time be a sort of guiding spirit to him—that would be his "good medicine."

You see, his religion was not like ours. Before the white man came, the Iroquois had not learned to think of there being only one great spirit. They thought there were multitudes of spirits. They had a sort of vague notion that everything could think and act just as men could do, and that it was wise to be friends with the spirits of everything. There was the spirit of the sky, the sun, the rain, the winds, frost, hail, stones, trees, and animals. Some spirits were good spirits and they were to be praised and thanked. Other spirits were evil spirits and men ought to soothe them and prevent them from getting angry.

*The Heno myth was typical of their myths.*—All sort of tales (we would call them myths) were told by them about the spirits. Heno, the Thunderer, was one of the most kindly of spirits. He brought the rain, helped the crops grow, hated and killed serpents and "false faces" or bad spirits. He carried on his back a great basket of bowlders and he threw them at evil spirits in the sky. If he missed, these bowlders fell to earth as balls of fire. This, of course, was the lightning.

Heno now lives "in the west" in the skies. He used to live under the falls at Niagara but his home was destroyed in the

curious way shown below. When he was still living under the falls, so one myth goes, there was a village up the river whose people were dying of pestilence. Heno told them that the trouble was that there was a great serpent in the ground who wanted to eat their dead bodies. This serpent accordingly poisoned the river so that there would be more dead bodies. Heno advised the villagers to move up Buffalo Creek.

This they did. The serpent missed his usual meals, and, putting his head above the water, he discovered what had happened and went up the creek after them. Heno gave him a mortal wound with a great thunder-bolt. The serpent turned to rush down the river and escape, and in its turning it bulged the shores of the creek out into bends which still remain, but it could not escape. Heno followed it with his thunder-bolts.



This picture of Heno, the thunder spirit, was drawn by an Iroquois. In his hair is the magic feather which made it impossible for the spirits of evil to harm him. This artist evidently thinks of Heno's arrows, rather than his bowlders, as the source of lightning.



The great carcass of the serpent floated down the river and lodged at the falls with its huge bulk reaching up stream in the form of a half-circle. This dammed the water, and finally so much water gathered above the serpent that it crumbled the rocks under the body and formed the great horseshoe falls of Niagara. Of course, this destroyed Heno's home under the old falls.

Stories like this were told of all sorts of spirits. They furnished, indeed, a large part of the stock in trade of the village story-tellers and, of course, they were believed by the children who listened to them, and they became a part of the "religion" of the people.

### FINAL SAMPLE FROM PROPOSED CHAPTER III

As a final illustration, there is given the conclusions of proposed Chapter III, some suggested problems, and a list of the collateral reading for that Chapter.

#### Summary and Conclusion

This has been a rather long story of our Iroquois friends and it is, therefore, worth while to think back over the whole story and get its main points in mind.

1. The first thing which stands out is the fact that the Iroquois lived much better than did Neanderthal man. In large part this was because they knew better how to use tools, because they were better harnessers of nature. This fact came out in our discussion of their weapons, of their shelter, of their household implements, and of their agriculture. The Neanderthal people were appropriators; the Iroquois were appropriators and adapters; we are to-day appropriators and adapters and creators, and our greater ability to harness nature means much greater ability to live together well.

2. The Iroquois was a better communicator than was Neanderthal man. He became as a result a better planner. True, he had only the beginnings of communicating with other people as far as trading with them was concerned, but he had made this beginning. We saw that his trading gave him birch canoes which were better than the elm canoes he could make himself. From the whole story of the Iroquois as communicators we get the idea that we ourselves can live together better by communicating with others, both in speech and in writing, and in exchange of goods. We begin to see money as a language of trade.

3. The Iroquois were teamworkers; they co-operated; they made plans and worked together in carrying out those plans. They

"pulled together" in the gens, in the village, in the tribe, and in the league. They pulled together in hunting, in tilling the soil, in war, and in play. They accomplished more by co-operating than they could have accomplished if each worked or fought alone. This gives us a hint that we ourselves shall live together well to the extent to which we are co-operators and planning organizers.

4. The Iroquois had group or social control. They had government and law but their social control was worked out mainly through custom, religion, and public opinion. In their religion we catch a glimpse of "man the aspirer," for in their religion they were seeking "the explanation of things."

### Problems

1. The Iroquois had no metals. What did they do for nails? For cooking utensils? For cutting tools? For hammering tools? For drilling tools?

2. In the account of how the Iroquois lived, we had almost a complete list of their tools and devices, and it did not take up much space. Would it take much space to list all our devices to-day? Are they all listed in a mail-order catalogue? How does it happen we have so many?

3. How do we store our foods to-day? Does the housewife store any? Does the grocer? Does the wholesaler? Does the grower? What are grain elevators? What are cold-storage plants? Have we ways of preserving foods which were unknown to the Iroquois?

4. Some Indian tribes had no pottery. They boiled meat thus: they dug a hole, lined it with the skin of some large animal, put in water and raw meat and then threw in red-hot stones from a nearby fire. This is "hot stone boiling." Is this a tool? If it is, give reasons why it is not as good a tool as pottery.

5. The Iroquois squaw sewed skins with a bone needle and with thread made of animal tendons. What do we use to-day? Not much of our clothing is sewed by hand. How is it sewed? Is it all sewed in the home?

6. Make as long a list as you can of the devices we use in communicating with one another to-day. Do the same in the case of transportation devices.

7. In what big ways did the Iroquois harness nature better than did Neanderthal man? Do we harness nature better than did the Iroquois?

8. Notice the range of diet of the Iroquois. Compare it with our diet by looking on the shelves of a grocery and a meat store



and by glancing through your mother's cookbook. Can you work out any reasons why the range of our diet is so much greater? Does range of diet affect health?

9. Notice the kinds and qualities of clothing of the Iroquois. Compare this situation with our situation by looking over the shelves of a clothing store and a drygoods store and by glancing through the catalogue of some big mail-order house. Can you work out any reasons why we have so many more forms of clothing, made of so many more kinds of material?

10. At your dinner to-day make a list of the things you have, including both utensils and kinds of food, which the Iroquois did not have. If some of your food is the same in kind as that of the Iroquois, how much of the preparation which the Iroquois squaw gave this food is now carried on in your home?

11. Are you quite sure you understand what is meant by the appropriative, adaptive, and creative periods of man's progress? If you have any doubt of it, read again the pages dealing with those periods, for you will need to use these terms.

12. When we were studying Neanderthal man, we said that no stories of how he lived had been handed down through the generations to us. Concerning the Iroquois, however, we tell what tradition says about the way they lived around Puget Sound and in the Mississippi Valley. How does it happen that traditions have not come down from Neanderthal man and that they have come down from the early Iroquois?

13. Think back over the way the Iroquois traded. Is more trading done to-day? Is it done in the same way?

14. Think back over how the Iroquois tried to cure a sick person. Compare the medicines used with the number on the shelves of a modern drugstore. How long do our doctors study before they try to cure people? Do you begin to see what we mean when we say we use *science* to-day?

15. Make a list of the ways in which an Iroquois youth could learn about their laws, customs, and religion. What ways have you to-day?

16. Have we anything in our government which is at all like the League of the Iroquois? Anything which is at all like their great autumnal council?

17. Someone has said that one of the greatest services of science is that it has freed man from many foolish fears and has made him feel safe. Can you illustrate this by comparing us with the Iroquois, who had no science?

## Collateral Reading

Collateral reading for this chapter includes such topics as the following:

1. A tribe of nomads (to show significance of domestication of animals).
2. The relation of geography to early transportation.
3. Woman's share in primitive culture.
4. The Iroquois myth of the creation.
5. Primitive man's knowledge as reflected in myth, fetishism, totemism, and taboo.
6. Caste as an organizing force.
7. Ants and aphids ("harnessing" on an instinctive basis).
8. References to Longfellow: *The Song of Hiawatha*.

The illustrations given have been confined to the introductory material, found in Parts I and II (see Table of Contents at the beginning of this chapter). But these illustrations and the full table of contents will serve to show the method which, it is here contended, should be followed in the presentation of the social studies in the seventh and eighth grades. The material should be rich with facts and with matters which can readily be connected up with the experiences of the children and it should be organized around the great basic relationships of our living together well.

With such material in the seventh grade, it would be possible to pass on in the eighth grade to a discussion of the place of the individual in society and in the ninth grade to a discussion of principles of social organization.

## CHAPTER VI

### BUILDING A FACT COURSE IN HISTORY AND GEOGRAPHY

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NOTE: Mr. Washburne earnestly requests the reader to read Chapter XIII before reading this chapter.

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Having discovered by objective study the relative importance of outstanding persons, places, and events (see Ch. XIII), the problem of molding the large and miscellaneous material into a curriculum adapted to elementary children confronted the Winnetka Social Science Seminar. Since this part of the work is still in process, this chapter is a report of progress and of method, not a report of a completed task. Although the seminar is still active, the bulk of the curriculum-making work is being done by our full-time research worker, Louise M. Mohr. The members of the seminar act as critics and advisors, and report directly on the children's reaction.

The first step toward making a curriculum was to break up our main list into some thirty topical lists. In one such list, for example, are collected the personages of ancient history. Christ leads, followed in order of importance by Caesar, Plato, Homer, Aristotle, Vergil, David (Biblical), Socrates, Solomon, Paul, Cicero, Cleopatra, Alexander, etc. Another topical list consists of places known to the ancients; another, of United States history from the Civil War to now, and so on. These topical lists form a skeleton for each phase of history and geography teaching.

They are only a skeleton, however. It is one thing to know that we must teach something about Caesar, quite another to know what to teach about him, and still another to know how to teach it. Each is a distinct research problem.

Various ways of determining what to teach about any given item (such as Caesar) were discussed. We might prepare an association test and get a large number of people to write down the associations that occurred to them on the mention of Caesar's name.

The large number of items, however, and the difficulty of getting enough people to write their associations on each, made such a method practically impossible.

A second suggestion was that we might go through our 266 periodicals a second time, noting the connection in which each of our top 1447 items is mentioned. This would have greatly delayed the practical outcome of our course, however, and might have resulted in some badly warped history. It would be interesting to try this method, but we had not the necessary time.

A more direct method, and possibly the best method, was the one we finally adopted.

Knowing that we have to teach children something about Caesar, we consult the best authorities we can find who write about him. These authorities include some source materials, some works on recent research in the field, and some advanced standard works, such as the *Britannica*. Out of the various incidents described by the various writers, certain ones stand out clearly as very important in the minds of those who know most about the subject. These are used to give meaning to the names on our list.

It may occur to some people that if we accept the historians' judgment on which incidents are most important, we might as well have accepted their judgment as to which topics we should teach. In other words, perhaps we might have saved ourselves the trouble of the investigation of allusions in periodicals. The relative importance of topics, however, may be entirely different from the point of view of the historian, interested in history for its own sake, and that of the elementary school, interested in enabling children to understand what other people are talking and writing about. This fact necessitated the periodical research described in Chapter XIII. As to the incidents concerning each topic, however, relative ranking is less important. We simply need vivid, truthful, color material to make our persons, places, and events real. This material can safely be taken directly from historians.

Nevertheless, we cannot merely throw names and incidents together and call the result a curriculum. Certain organizing principles are needed to give unity and coherence to the whole. In our own minds we have certain general purposes which we use in or-



ganizing our work. One of these is to help children see the action of cause and effect in their study of the social sciences. Another is to help them to realize the interdependence of man on man—the fundamental unity of the human race. These purposes do *not* dictate the fact material. They are not the basic purposes of the course, which is, first of all, a fact course to make children intelligent concerning commonly known persons, places, and events. They do serve, however, to make this fact course organic and help it to lead toward more advanced social science courses in which problem solving and recognition of human integrality may be the guiding principles.

The amount of time devoted to any one topic is roughly proportionate to its rank on our general list. Furthermore, those topics with high rank are brought in again and again, whenever the story permits. Thus far, we have almost been able to avoid even the mention of persons or places that are not on our original list. While we may not be able to follow this exclusion rigidly throughout the course, our tests will be solely on the topics shown to be important by our investigation. The stress given to each topic will continue, in both lesson and test material, to be in accordance with the importance of that topic.

The objective and statistical gathering of the topics on which our fact course is to be based, followed by a careful study as to the most important incidents to be taught under each topic, and the organizing of this material into a coherent narrative with certain underlying ideals, does not yet complete the scientific building of a fact course. The course must be adapted to the children for whom it is written, and we must have statistical evidence that it is so adapted.

Our material is prepared in mimeographed form, and presented to about 150 children in the grade for which the particular section of the course is being written. Thus far, we have been working only on material for our fifth grades, the history of the middle ages and the corresponding geography. We are correlating history and geography completely.

As an indication of what our material is like in its tentative, preliminary form, we are inserting here a portion of the chapter



on the Barbarian Invasions. We regret that space will not permit a reproduction of the many outline maps that accompany this material, on each of which there are a number of things for children to *do*. The following is presented, not as a model, nor as a completed piece of work, but as a sample of our first experimental material, to show roughly how the facts are being woven together:

### Sec. 2—*The Barbarian Migrations*

When the Teutons and Romans first met, there were many long wars. The Romans learned that the barbarians were good fighters. After a time, the Roman generals decided to leave them alone. On the other hand, the Teutons also learned to respect the fighting power of their enemies—the Roman legions. They, too, decided to keep peace with the Roman armies. Now and then, barbarian chiefs were invited to Rome. They brought back tales of the wonderful palaces, of great cities. They told of rich feasts and of the exciting circuses of Rome.

In this way, many tribes of barbarians learned to look upon the Roman Empire with wonder and awe. They did not know that Rome was crumbling. They listened only to the stories of the strange things that their chiefs had seen.

For several hundred years then, the Romans and the Teutons were at peace with one another. The Romans were content to live on one side of the Rhine and Danube Rivers. The barbarians lived their wild life in the forests on the other side of these same rivers.

At about the year 350, a change began. The people who caused this change did not even live in Europe. They were the wild Huns, who belonged in Asia. They were wandering herders who roamed on the grassy plains beyond the Volga River near the Caspian Sea. (Find these places on Map 5.) We often call them “nomads,” meaning “wanderers.” They owned large herds of horses and sheep, which they pastured on the plains. They would stop in one place until all the grass was eaten off. Then they would move on to another place. Every one in the family rode on horseback—men, women and children. A Roman, who knew something about these Huns once said:

“There is not a person in the whole nation who cannot remain on his horse day and night. On horseback, they buy and sell, they take their meat and drink. They even recline on the narrow necks of their steeds, and sleep so deeply that they dream.”

These Huns were fierce and warlike. Tribes of them often fought one another. From time to time tens of thousands of them would set out on a raid. They would spend years warring, burning, and destroying wherever they went. Sometimes they would ride hundreds of miles to the east, and attack the rich Chinese cities. Sometimes they spread out to the west, across the

Volga into Europe. It was one of these great westward raids of the Huns that helped to upset the Roman Empire.

On Map 5 you will see that the Ural Mountains run south *almost* to the salty Caspian Sea. Notice, however, that there is a little level gap between the mountains and the sea. The Huns, riding on horseback, did not like to cross the mountains, so they travelled into Europe through this small gap. Thousands and thousands of them poured through with their fine horses, their herds of sheep, and their clumsy wagons. They built small rafts and boats to cross the Volga River. They pushed westward into the fertile lands north of the Black Sea.

What about the Goths, however? They were living on just those plains, north of the Black Sea. As you know, these Goths, like all Teutons, were warlike people. Brave as they were, they did not care to stay and fight the terrible Huns. The Goths packed up all their belongings. Men, women, and children moved westward. On Map 5, you will see how they skirted along the eastern slopes of the Carpathian Mountains. Soon they reached the Danube River. Here these Teutons stopped and held a council. The Danube was the boundary of the Roman Empire and the barbarians knew it. They knew, too, that the Romans might drive them away, if they crossed without permission. But the Goths couldn't go back because the Huns were coming, as cruel and terrible as ever. Finally the chiefs of the tribes sent a messenger to the emperor at Rome. They asked permission to cross the Danube River. They promised to settle down quietly at farming. They also agreed to furnish soldiers for the Roman army. This latter offer pleased the emperor very much, for he was always glad to get more soldiers. Therefore, he gave the barbarians the right to cross the river. They built hundreds of rafts and canoes. Day and night they poured across the Danube. The Roman officers who were sent to watch the crossing, tried to count the barbarians, but they gave it up as a hopeless job. The officers, watching boat-load after boat-load cross, said that they might as well try to count the waves of the sea as the number of the barbarians.

These Goths were the first of the Teutons to push into the empire. They came peacefully, and tried to settle down quietly. But it was not long before some selfish Roman officials began to mistreat them. The emperor had said that he would give the new settlers free food while their first crops were growing. The officials, however, charged the settlers very high prices for the food. It is even said that some of the Goths had to sell their children as slaves in order to pay for meat and grain. Soon the barbarians became very angry. Instead of settling down, they attacked the Romans, and broke farther and farther into the empire.

At the same time the stream of the Huns was pushing onward toward the Rhine River. Everywhere the Teutons fled before them. Tribe after tribe started westward or southward—anywhere to get out of the path of the terrible raiders. Burgundians pushed against the Lombards and Franks. Other

tribes pushed against the Angles and Saxons. Tribe after tribe pressed against the Roman boundaries. Finally, they broke over and thousands of Teutons poured into the empire.

The Roman Empire, as you know, was really weak and helpless. It crumbled away as the Teutons pushed in. The barbarians wandered into Greece, into Gaul, into Italy, and plundered the imperial city of Rome itself. Others (you will find on your Map 6) wandered far across the Pyrenees Mountains, into Spain, and even into Africa. Remember, however, that they were not trying to conquer the Roman Empire. Most of them were chiefly interested in getting out of the way of the wilder tribes that were pushing against them.

We call this moving of the Teutonic tribes into the Roman Empire "The Migrations of the Teutons," or just, "The Great Migrations." (Migration means the moving of a large number of people.) Read more about them, and the lands that the barbarians conquered in at least one of the following books:

Harding—*The Story of Europe*—pages 123 through 141

Gordy—*American Beginnings in Europe*—pages 121 through 131

Woodburne and Moran—*Introduction to American History*—pages 105 through 111.

Before giving the children any of our material, we test their reading ability with the Burgess Picture Scale. If a child has only 2nd or 3rd-grade reading ability, his failure to comprehend our material will not indicate faulty construction on our part. Similarly, the success of our fifth-grade material on children of eighth-grade reading ability, will not indicate that we have prepared the material well. The records of children with fourth, fifth, and sixth-grade reading ability, however, will be very significant.

In order to know whether our material is "getting across," we have to prepare very full and objective tests. These tests usually contain four to six questions on each topic. All questions are so constructed as to have an answer which is definitely right or wrong. We are testing the children's knowledge of the topics we have been teaching, not their ability to express themselves. Opportunities are given during the course for the children to write compositions. But the tests of the course are for the sole purpose of measuring geographical and historical knowledge. Here is part of a test on the Middle Ages:

24. Some of the tall, fair-haired, blue-eyed barbarians were called:

- (Burgundians
- (Romans
- (Huns
- (Egyptians

25. The Teutons were

- (a fierce tribe that lived on the plains of Asia
- (the tall, fair-haired barbarians who lived north of the Roman Empire
- (the wild, wandering horsemen who drove the Goths into the Roman Empire
- (the first inhabitants of Rome.

26. "These people are small, but they are very fierce and warlike. Their faces are broad and their noses are very flat. Their eyes are set at a slant, and their hair is coarse and black. They live in tents or in dirty huts. They drive their sheep and horses from one part of the plains to another, looking for grass. They ride on horseback, day in and day out, so that they are bow-legged. When they do walk, they take waddling steps."

The writer was talking about the

- (Huns
- (Teutons
- (Romans
- (Carthaginians

27. The Saxons were

- (one of the Teutonic Tribes
- (a tribe of people living near Rome
- (the same as the Huns
- (the people whom Caesar found in Briton

28. "After a long walk through the forest, they reached a clear space. In this clearing there was a village of twenty or thirty huts. The huts were small and round. They were built of rough timber, more or less plastered with mud. They had roofs that were covered with straw."

The huts belonged to

- (Latins
- (Huns
- (Teutons
- (Roman Soldiers

29. Some of the barbarians living just *outside* the Roman Empire were called:

- (Lombards
- (Legions
- (Swedes
- (Huns

30. The Saxons
  - (broke into the Roman Empire during the Great Migrations
  - (refused to go into the Roman Empire
  - (came from Asia in about the year 350
  - (fought with Hannibal against the Romans
31. The Huns were
  - (tall, light-haired barbarians
  - (Latins living near Rome
  - (yellow-skinned, black-haired people, with slanting eyes
  - (gladiators who fought in Roman amphitheatres
32. Which of the following did the Teutonic barbarians use?
  - (stone hatchets
  - (pistols and guns
  - (small cannons
  - (spears and shields
33. The women of the Teutonic tribes often
  - (took care of the little patches of grain that were used
  - (went hunting with the men of the tribe
  - (wrote stories and poems
  - (lived lazy lives, doing nothing
34. The Lombards
  - (were all killed by the Huns
  - (were driven into the Roman Empire by the Huns
  - (became friends with the Huns
  - (invaded Spain and Africa
35. The barbarian peoples
  - (enjoyed fighting in battles
  - (thought that all wars were wrong
  - (were afraid to fight
  - (fought only when the Romans hired them to
36. Some of the barbarians living just *outside* the Roman Empire were called
  - (Carthaginians
  - (Americans
  - (Burgundians
  - (Egyptians
37. The barbarians spent much time
  - (hunting in the forests
  - (building stone houses
  - (working in stores and offices
  - (organizing well-drilled armies





TEST MAP 1A

The numbers on this map mark locations which you should know. In each of the following sentences the name of a place is left out. The number in the space tells you where to find what this place is. Find the same number on your map. Then write the name of the place in the blank space.

The large body of water south of Europe is the (1).....Sea.

This continent on which the Teutons lived is (2).....

The little country whose ancient peoples built some of the most beautiful buildings in the world is (3).....

This country of pyramids and mummies is (4).....

The great city where the emperors lived and the gladiators fought is (5).....

The snowy mountain peaks through the passes of which Hannibal struggled with his war elephants are the (6).....Mts.

The sun-baked hillsides where the Jewish people found the Promised Land are (7).....



TEST MAP 2A

- The river which once marked a northern boundary of the Roman Empire is the (8).....River.
- The river on the banks of which the Pharoahs built the pyramids is the (9).....River.
- The southwestern point of Europe from which Hannibal set out on his march to Rome is (10).....
- The continent on whose grassy plains the Huns pastured their flocks is (11).....
- The continent on whose northern borders we find Egypt and Carthage is (12).....
- The ocean west of Europe on whose stormy waters the Romans feared to venture is the (13).....Ocean.



TEST MAP 1B

The numbers on this map mark locations which you should know. Find each number on the map, and write the name of the place it marks in the proper blank space.

- This country is (1).....  
 This continent is (2).....  
 This country is (3).....  
 This city is (4).....  
 This continent is (5).....  
 These are the (6).....Mountains.  
 This is the (7).....River.  
 This continent is (8).....  
 This is the (9).....Ocean.

This is the (10).....Sea.  
This land is (11).....  
This country is (12).....  
This is the (13).....River.

A careful record is being kept of children's results in these tests. In a large ledger the names of the children, grouped according to reading grades, are listed across the top of the pages. Down the left margins of the pages are the numbers of the test questions. Under each child's name and after each question number is checked the child's response to the question, as right or wrong.

From this record we can ascertain two things: If most questions on any one topic are wrongly answered by many children, we have presented the topic poorly. If several questions on one topic are answered correctly by most children, but one or two questions on the topic are wrongly answered in many cases, the indication is that these questions are not well stated.

As our record becomes complete on each topic, we shall revise our material as indicated by the test results, and try out the revised copy.

In this way we are determining experimentally *how* to present the fact course, after having determined by an objective investigation what the course should contain. It is a serious attempt to apply the essentials of scientific curriculum-building to the making of a basic fact course in history and geography.

## CHAPTER VII

### EDUCATIONAL ECONOMY IN THE REORGANIZATION OF THE SOCIAL STUDIES

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In the reorganization of the social studies which has been in progress in the University of Chicago High School during the last five years one of the major objectives held constantly in view has been the promotion of economy in education. This objective has been a controlling factor in the organization of courses and the preparation of material, as well as in experiments which have had for their end improvements in the technique of teaching. This paper will be confined primarily to the reorganization phase of the undertaking, with brief reference to those phases of methodology intimately involved in it.

So far as our efforts relate to the organization of material, then, the result is summed up in the following four-year program of courses: (1) "Community-Life English"—a unified course composed of social-science and English materials and comprising an introduction to the study of society; (2) "Survey of Civilization"—a course in history, covering, roughly, the period from barbarism to the middle of the eighteenth century and consisting of a series of cross-sectional studies of the great movements and civilizations of the past; (3) "Modern History"—a combination course in American and European history, covering, approximately, the events of the last one hundred and seventy-five years; and (4) "Modern Problems"—a course in modern society, in which chief stress is laid upon the economic and political principles which enter into present-day human association. This program, with its two years of history and two years of modern society, seems to comprise an economical arrangement of the material with which high-school boys and girls should become familiar in order to understand the world in which they live and in order to play their parts well in that world.



This sequence of social studies has been planned with the thought that it should be required of all pupils for graduation from the high school. No subject, of course, should be required of *all* pupils which *all* pupils do not require. Most American educators, for example, would not require all pupils to study Latin, because all pupils will not need to use Latin; in all probability, however, they would require all pupils to study English, because all pupils need to use English. In like manner, since all American boys and girls are citizens, courses which have as their main goal the making of good citizens should be required of all—subject to the condition, of course, that the topics which enter into them are of general worth or value for training in citizenship. In the selection of the topics which comprise the foregoing courses this standard of general worth, or value, has been the criterion to which all material has been subjected before incorporation.

In the Community-Life English course, for example, no topic has been included which is not of direct or indirect concern to all normal boys and girls; for any phase of life in which the great mass of people play a part is held to be of present or future concern to the great mass of boys and girls. Thus, the first main division of the course centers about "Group Life" and includes as its individual units or topics "Myself and Others," "The Family," "The School," "The Church," and "The Community." Since human life is always group life, a division of this sort is of concern to all human beings. More particularly, since the normal boy and girl plays a part in, or at least is greatly affected by, the home, the school, the church, and the local community in which he resides, these topics are of importance to all pupils. In like manner, all are concerned by the topics which are embraced in the second main division of the course, "Problems of the Community":—"Immigration," "Health," "Protection," "Recreation," "Civic Beauty," "The Handicapped." The relation to the children of the community of the last two main divisions of the course—"Industrial Society" and "Government and Political Parties"—is obvious, for with negligible exceptions all will eventually become workers and all will become partners in the business of government. Community-Life English, in short, is composed of topics

which not only concern pupils, but which are more or less closely related to their experience. This phase has been explained in another place:

"It is apparent that these topics all deal with matters which are of concern to boys and girls, although they may not at first be conscious of the fact. In addition, they all relate to things with which pupils have had some experience. For example, boys and girls, like older people, are dependent upon others for much that makes life worth while. With few exceptions, they have lived since birth as members of families. Usually, from the age of six on, they have spent a large portion of their time in school. While they may not have joined a church, most of them have at some time come under its influence in the Sunday school or in connection with its other activities. All their lives they have been members of a community, sharing its opportunities, and affected by its problems. By the time they reach junior-high-school age, some of them have come into direct contact with the world of work, and most of them have begun to think about an occupation. Even in the realm of government they have usually had some experience, although this experience may be limited to the use of the streets and the parks, to the handling of postage stamps and money, or to the seeing of firemen and street cleaners at their accustomed tasks."<sup>1</sup>

The content of Community-Life English, then, has been determined by subjecting each topic to the criterion that only material which has value to normal children should be included in the course. In selecting the minimal essentials in the other three courses in the sequence, a similar effort has been made to apply rigorously but without pedantic narrowness the same severe test.<sup>2</sup>

The effort to promote educational economy in our reorganization of the social studies has not been limited to a critical selection of the minimal essentials of the various courses. In addition, there has been an attempt to lighten the burden of school administrators by demonstrating a practical way of reducing the load on the cur-

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"Opportunities for Correlation between Community Life and English," *School Review* (March, 1922), vol. XXX, pp. 176-177. Details of the administration and content of the course in Community-Life English, as well as a description of methods of instruction which are employed, will be found in a series of articles published under the title given above in the *School Review*, January to March, 1922.

<sup>2</sup>Owing to limitations in space, it is impossible to give the content of the courses in Survey of Civilization and Modern History. Readers who are interested will find this material in A. F. Barnard's "Survey of Civilization" and in my "Course in Modern History;" these articles were published in *Studies in Secondary Education*, vol. I, University of Chicago High School (January, 1923). Cf. also my "Two-Year Sequence in History," *op. cit.* and my "Attainable Program of Social Studies for the High School," *Historical Outlook* (December, 1922), vol. XIII, pp. 353-356.

riculum instead of increasing administrative difficulties by insisting on additional courses. This purpose is a partial explanation of our experiments in the correlation and combination of English and social science which have been in progress during the last five years. In order to evaluate these experiments properly it is necessary at this point to consider briefly the teaching of English in the schools.

However teachers may differ in their opinion as to what English is and what is involved in its study, all will agree that, looked at in the large, instruction in English has two phases: first, the reading phase, and second, the expressional or composition phase. The reading phase, as traditionally interpreted, consists in acquainting boys and girls with that body of literature ordinarily described as the classics. The expressional phase, especially in written form, has frequently centered upon the production of imaginative themes. During late years there have been indications that teachers of English regard these interpretations as inadequate; that they feel that the reading phase of English should include selections from all types of worthy literature; and that they believe that instruction in the use of the vernacular may profitably include all forms of oral and written expression.

It is this conception of English which has guided our experiments in the combination and correlation of the subject with the social studies. Instruction in the use of the mother tongue is deemed to have as its chief goal the cultivation of the power and practice of clear, effective, and fluent expression. It is believed that it is impossible to realize this goal if instruction is limited to the confines of the English classroom; that only in so far as clearness and fluency in oral and written expression are demanded in all classrooms will such instruction really function. In other words, it is held that boys and girls will ordinarily acquire a mastery of the vernacular only when, and if, constant and persevering attention is paid to their habits of speech and writing in courses other than those devoted solely to the teaching of English. In so far as instruction in English is concerned with the inculcation of right habits of expression the problem then is regarded as one which concerns the school as a whole, not a single department in the

school. It follows, naturally, that if each department does its part in making correct habits of speech and writing habitual, the time now required for such instruction by departments of English can be reduced and educational economy can thereby be promoted.

These views explain in part the emphasis placed upon the expressional side of the work in all courses in the University of Chicago High School. In the teaching of the social studies attention is given throughout the year to proper methods of making outlines, taking notes, and organizing material. Such elements of social courtesy as the indication of sentence and paragraph units, and the observance of the ordinary rules of punctuation, grammar, and capitalization are insisted upon. Papers which come to the teacher in careless and incorrect form are regarded as unacceptable and are returned for rewriting. In some instances, pupils have been required to rewrite papers as many as four or five times because of errors in English. These instances, however, are exceptional; the return of a paper because of violations of the ordinary decencies in expression usually results in rapid improvement, especially in the case of mistakes due to carelessness.

Training in oral expression also constitutes an important feature of the work in all courses. While the social-science classroom is looked upon primarily as a laboratory and therefore as a place for study, there are times when oral expression has the right of way. The usual practice at these times is for pupils to stand before the class and present their understanding of a topic in a well-organized floor-talk. When this plan was first introduced—some five years ago—many of the pupils had difficulty in speaking upon a subject in an effective way for as long as two minutes; at the present time it is not uncommon for juniors and seniors to be able to discuss a topic in floor-talks of from ten to twenty minutes. Instruction in this work includes such items as organization of material, clearness of enunciation, correct standing position, avoidance of pitfalls of speech, and pleasing address and presentation.

In this connection it should be noted, finally, that insistence upon clarity of expression is productive of clarity of thought. It is no exaggeration to say that an inability to explain a matter clearly usually indicates a lack of clearness of comprehension. Cer-



tainly, to reverse the statement, a convincing proof of a pupil's mastery of a topic is his power to explain it clearly to some one else. Stress on this matter is regarded as essential, then, not merely because it is valuable as instruction in English, but because it constitutes a vital phase of the learning process. It, too, promotes economy in education.

In so far as suitable material is available, wide reading is encouraged and provided for in all our courses in the social studies. In the history classes, for example, the work is carried on almost wholly by the library method. At the beginning of the study of a topic each pupil is given as a guide for work mimeographed sheets containing a list of the minimal essentials, suggestions for supplementary projects, and a wide list of reading references. These references include citations to standard textbooks, extensive histories, biographies, contemporary narratives, orations, and historical novels. Although the opportunity is limited, owing to the paucity of such appropriate reading material, use is also made of poems and dramas. Among the references for the study of the slavery controversy, for instance, are speeches by Lincoln, Douglas, and Webster; novels such as Stowe's *Uncle Tom's Cabin*, Churchill's *The Crisis*, Johnston's *The Long Roll*; contemporary narratives like Chestnut's *A Diary of Dixie*, Schurz's *Reminiscences*, Dawson's *A Confederate Girl's Diary*; selections from such poems as Lowell's *Biglow Papers* and Whittier's *Voices of Freedom*; and a drama like Drinkwater's *Abraham Lincoln*. This arrangement, it will be seen, tends not only to vitalize the work in history, but also to promote in a practical way correlation with the reading phase of English.

The opportunity for educational economy has proved to be greatest in the course in Community-Life English. This course, as already stated, is an introductory study of society which provides an abundance of material suitable for instruction in both the reading and expressional phases of English. So satisfactory from the standpoint of both civics and English has it proved that for four years it has served as a combination course in the two subjects. This arrangement has resulted in the saving of a year of instructional time. In addition, it has enriched the work in both



English and civics. A brief examination of the character of the reading and instruction which obtains in most traditional courses in English and in civics will help to clarify this last statement.

The reading in the traditional English course is usually centered upon the classics and includes in general only imaginative selections—poems, dramas, and novels—with now and then an essay or an oration. With occasional exceptions the fields of travel, history, biography, and science are untouched. In such courses, as a rule, emphasis is placed upon literary form rather than upon content, under the mistaken notion that this is the way to develop an appreciation or liking for belles-lettres. The result may be gauged by the indifference to the classics which appears in the voluntary reading of the average boy or girl, young man or young woman, who has been introduced to the great literary masterpieces by the analytical or anatomical method. Those who doubt that this indifference exists need only stand at the counter of a public library and note the books in demand.

The reading prescribed in the majority of civics courses is equally unproductive. Here the material provided is almost wholly of the factual or informational sort found in the average textbook; in many instances, the reading is limited to the text. In most of these books the treatment of topics consists largely of abstractions and generalizations. Naturally, when supplementary material is so restricted, the study of civics, so far as reading is concerned, tends to become like the desert and its real significance remains too often quite unintelligible to the average boy or girl.

Now, whatever the value of an analytical study of the classics may be—and that there is value for advanced pupils in such a study will scarcely be questioned—and whatever the utility of an abstract discussion of civics may be—and of its value one may entertain serious doubts—this type of instruction and material should not play a dominant part in the instruction of boys and girls of junior-high-school age and interests. During these years, if pupils are to become lovers of good literature, books, as Herbert V. Coryell says, must “be read as wholes, loved as wholes, and lived with as wholes. They were not meant to be chopped up into small lesson sections and studied by the aid of a classical dictionary;

[even] students of literature will not be stirred deeply by any such procedure.'"<sup>3</sup> In like manner, if reading is to contribute to make civics the vital and interesting subject it should be, it should consist of an abundant supply of concrete descriptive and illuminative material.

The meeting of this two-fold need in English and in civics has been an ever-present purpose in planning the readings for Community-Life English. When pupils begin the study of a major topic in the course, they are given an extensive book-list, containing from fifty to two hundred titles, each of which throws some light on the theme to be studied. These references are grouped in three large categories. The first of these, called study references, is made up of the type of material ordinarily used to supplement the civics text—parallel text accounts, pamphlets, bulletins, and detailed expository and descriptive discussions. The second consists of selections from the more graphic and interesting works in biography, history, travel, and essay. The third group, styled imaginative literature, is composed of novels, short stories, poems, and plays which illustrate the topic in question.

In the study of a topic like immigration, for example, the information which is obtained from the text and references like Orth's *Our Foreigners* and DuPuy's *Uncle Sam's Modern Miracles* is supplemented by the concrete descriptions of immigrant experiences contained in books like Bok's *The Americanization of Edward Bok*, Panunzio's *The Soul of an Immigrant*, Antin's *The Promised Land*, McClure's *My Autobiography*, Riis' *The Making of an American*, and Steiner's *From Alien to Citizen*. Added to readings like these are the vivid portrayals of the dreams and hardships, victories and defeats, of the foreign-born as pictured in such stories, poems, and plays as Edith Miniter's *Our Naputski Neighbors*, Myra Kelly's *Little Aliens*, Willa Cather's *My Antonia*, Robert Schaufliker's *Scum o' the Earth*, Daniel Henderson's *The Alien*, and Israel Zangwill's *The Melting Pot*. The boy or girl who has studied immigration in this manner not only finds it vital and interesting, but also as

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<sup>3</sup>*The Outlook* (February 1, 1922), Vol. CXXXI, p. 189. Mr. Coryell's article, "Killing the Classics," should be read by all teachers who love worthy literature.

a rule is awakened to an intelligent and sympathetic attitude upon the subject.

The course has been successful in stimulating the reading of pupils and in cultivating in them a liking for good literature. In the last semester for which the records are available (February to June, 1922), the minimal number of pages read by any pupil in an eighth-grade class containing twenty-six boys and girls, was 2,503, the maximal was 17,249, the median was 4,674.5, and the average was 5,080.8.<sup>4</sup> This reading, it should be remembered, was done during a single semester of seventeen weeks. Since the pupils are told that the requirement in reading will be met if they give an average of half an hour a day outside of class to the titles on the book-list, it is apparent that the bulk of their reading is of a voluntary nature.

What pupils do when entirely free from the direct influence of the school, however, affords the best evidence of its effect or non-effect upon their tastes. For this reason the following incident is pertinent. During a recent vacation of eight or ten days (preceding which nothing had been said about reading) all but one of a class of twenty-five pupils read from two hundred to twenty-five hundred pages each; the average per pupil was about eight hundred pages. Most of this reading was in worth-while literature: among the titles reported were Thackeray's *Vanity Fair*, Kipling's *The Light that Failed*, Osborne's *Within Prison Walls*, Eliot's *Romola*, Dumas' *The Count of Monte Cristo*, Porter's *Scottish Chiefs*, Dickens' *Oliver Twist*, Goldsmith's *The Vicar of Wakefield* and Hugo's *Les Misérables*. Although this result cannot be attributed solely to the stimulus furnished by Community-Life English, the evidence seems to indicate a connection between the two. With two exceptions all of the books named above were on the book-lists and all had been the subject of enthusiastic comment by members of the class. The boy who confessed that before he took the course the only books he cared for "were cheap books that were utterly useless," but who found during the year that

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<sup>4</sup>For detailed statistics of the reading of various classes since the experiment was begun, see my "Opportunities for Correlation between Community Life and English," *School Review* (January, 1922), Vol. XXX, pp. 31-35.

other books were "very interesting" is not the only instance of a pupil's saying, as he did, "I am glad I have developed this taste."

In the expressional side of the work, the results secured from Community-Life English have proved equally encouraging. Pupils who have found it hard to talk or write on the subjects ordinarily suggested in traditional English classes have had little difficulty as a rule in finding "something to say" on social-science topics. The reason for this is not obscure: everyone is interested in things which concern him and with which he has had experience. As pointed out earlier, the topics which enter into Community-Life English are of this type; they are well suited, therefore, for composition purposes. If a pupil feels that the members of the class are genuinely interested in what he has to contribute (and they are likely to be interested if he really has something to contribute), and if he knows that he has something to contribute (and this is likely to be the case if he has had experience in the topic or has read widely upon it), the composition problem will in large part be solved; for true expression always results if the speaker or writer has a social purpose and confronts a genuine audience situation.

In fact, when the significance of social-science material is brought home to boys and girls, it will be found productive of expression. Its suitability for developing skill in exposition, description, and argumentation is obvious. It has shown its value in equal degree in those forms of composition sometimes called 'imaginative' or (mistakenly) 'creative'—poems, plays, essays, and short stories. The following themes, slightly edited for the correction of obvious errors, may serve as examples of the work of the pupils. In some cases it has been impossible, owing to lack of space, to include the whole composition. The first theme was written in connection with the study of the family.

#### THEODORE ROOSEVELT: THE IDEAL FATHER

Whenever I think of Mr. Roosevelt, I think of him more as a father than I do as a statesman, an author, or a hunter.

Mr. Roosevelt always thought first of his family and what would be best for them. His main thought dwelled with his family constantly and whenever



he was separated from them he wrote them letters such as anyone would be proud to receive.

He was never too dignified nor too busy to notice children. They were to him the most precious things on earth, and whether they were alley youngsters from the slums or the children of multi-millionaires, he was always interested in their doings and ready to join them in play if they asked him. He would play with all children as one of them, and if they regarded him as superior to themselves he felt hurt. One of his children's greatest pleasures was waiting with ammunition until their father came upstairs at night and then showering him with pillows. After this, they were certain that he would play with them, or read, or do whatever they wanted him to do until bedtime. Through reading and telling them tales of the jungle, the west, and hunting, he developed in the boys a love of all nature. It was never beneath him to play tag over the haystacks at Sagamore Hill, or run races, or go head over heels down a hill. At one time he even acted in a vaudeville that the children gave in the old barn.

He had the highest regard for his family and tried always to do what was best for them. He never allowed wine at the table, when the children were present, except on Thanksgiving or Christmas, because he didn't think it best for the children. I don't mean that he spoiled his children, because that was what he didn't do. If they were naughty or quarreled or disobeyed their parents, they got what they deserved. He brought his children up to be fine, clean, and wholesome men and women. All of the boys fought in the war in France, while the girls worked in various ways here in America.

Altogether Mr. Roosevelt can well be used as the idol and the pattern of all American fathers.

As an illustration of the way in which the wide reading in the course is of value in developing skill in simple literary criticism, the following extract from a pupil's theme—reproduced without the slightest alteration—has interest; unfortunately, lack of space prevents the printing of the entire composition. It was written in connection with the study of the topic "Protection."

#### THE DETECTIVE IN FICTION

I suppose all who have read the series of detective stories exploiting Sherlock Holmes will agree with me that he is perhaps the best of fiction detectives. Of course the fluency of Conan Doyle's literary style has much to do with the fascination of his creation. Yet aside from this, Doyle's hero has many qualities to recommend him. In the first place, Sherlock Holmes is more natural and human than his fellow sleuths. Many fiction detectives are more like Hindoo magicians than common, ordinary mortals. Secondly, Sherlock Holmes stands forth in prominence because his creator has not muddled



him up with any silly romances. Romances are all right in their place, in a love story, but they are abominable in a detective story except, perhaps as sub-plots. And thirdly, Sherlock Holmes is a splendid detective because he knows how to keep his mouth closed. A great many fiction detectives are responsible for most of the "conversation" in their respective books. An over-eloquacious detective is as bad as a love-sick one. Hamlet could get up and soliloquize for a page or two on whether "to be or not to be" and get away with it, but a detective can't.....

The reader of fiction may always take it for granted that the many initial clues will lead to nothing. But the real detectives often solve cases from early clues. Few detective stories are written in which the first clues are really valuable for the simple reason that the readers have been so trained that they would be terribly angry with themselves and the author if the first clues should turn the trick. Those who read detective stories must therefore read of the sleuth whom the author purposely keeps in suspense until the last page. The reason for my great admiration of Sherlock Holmes is because he is one of few detectives who works his way up faithfully from early clues. Unlike most of the detectives in fiction he solves the mystery step by step from the first clue instead of, as in most detective stories, step by banister. For the detective of fiction, with but few exceptions, takes one step, takes two steps and then slides back down the "suspense banister" to where he started.

It is interesting to compare one detective in fiction with another; it is interesting to compare the fiction detective with the real detective; it is interesting to note that some detective stories are famous largely because of the detective who solves the case; but after all it is the case rather than the detective that makes for interest, for a case of deeply entangled mystery arouses tense excitement regardless as to how or by whom it is being unravelled.

The topic of "industry" has proved especially valuable for composition purposes. Even the pupils who seldom become enthusiastic over anything are with rare exceptions aroused to interest and effort here. Indications of this interest can be seen in the themes below. The first two were written by pupils of mediocre rank; the third by one who stands somewhat higher. Space permits the printing of only a short passage from each theme. Different types of themes have been selected so as to illustrate the suitability of social-science material for various forms of expression. The little play, of which only the opening lines are given, was so enthusiastically received by the class that it was later staged by several of the pupils as an after-school entertainment.

## POTTERY

What would the housewife of today do without dishes? Would she cook the food and demand that her husband eat it out of the frying pan? Or would she flounder about and say she couldn't possibly live without dishes? What did primitive man do before pottery was discovered? He received his roasted meat in chunks, like the Indian of yesterday, and ate it without the use of dishes or forks.

But one day many, many years ago someone saw a mass of clay with a small stream of water filtering through it. By chance this mass of clay caught his eye and he picked up a bit to see what it was. He found that it was soft and could be easily moulded. He fashioned a rude cup from it and placed it on a stone, laughing at what fate had done. A day or two later he passed near by and saw his cup still there, unmarred and dry. He picked it up and filled it with water. Joy! the water did not leak. He rushed to the camp and told of his discovery. Many years later, a clay pot was dropped, by accident, into the fire. After the fire had been demolished, the pot was found, much harder than the old kind. This, too, was a great discovery and after this time, food could be cooked directly on the fire.

Pottery has developed to such a degree that today we find fine dishes on the table for daily use. To make pots, vases, etc., modern potters still employ the old methods. This pottery is sturdier and, although not quite as graceful as the table dishes, it is in every way as beautiful....

## CHILDREN OF TOIL

## CHARACTERS

Mrs. Donovan.....the mother  
 Mary Ellen.....her daughter  
 Nora.....another daughter  
 The Brat.....Nora's son

## SCENE

A room in the basement of a frame shack. At center back is a door from which can be seen three or four steps leading up to sidewalk. At the right of the door is a large window that lets in but feeble light, it is so dirty. To the left of door is a small table on which is a mouldy crust of bread, a few scraps of meat, and a boy's red flannel shirt. Before the window is a shake-down bed seemingly covered with all the clothing and rags in the family. In the middle of the room is a small table on which is a smoky kerosene lamp and a small family Bible. At the right is a door leading to another basement room. To the left of the table is a large wooden wash-tub from which comes a cloud of steam. Against the wall at left, about the center of the room, is a two burner oil stove on which is a large boiler. Two or three chairs are standing about the room. The air is steamy and there is



of the Olympia National Forest. On his right was the valley of the Dosewallops River,...on his left, the Dungeness Basin, while behind him the farm lands gradually sloped downward to the shores of Hood's Canoe.

Stutter was saying, "W-why'd I l-leave S-Seattle? Why'd I leave c-college? W-why'd I e-ever j-j-join th' Rangers? O why'd I--'", when he suddenly raised his binoculars again to his eyes.

What he saw caused him to rush to a large wooden box nearby, unlock it, take out several strange looking instruments, and look through them in the direction of a small column of smoke seen in the distance . . .

In the reorganization of the social studies in the University of Chicago High School educational economy has been a constant and continuous consideration. In the four-year sequence which is now provided, two years—the second and third—are devoted primarily to history; during these two years economic and social matters receive chief stress. The other two years—the first and the fourth—are given to the study of the social sciences other than history; in this study, however, a large use is made of historical material. In each course an effort is made to correlate the work with English: correct oral and written expression is looked upon as essential. Economy in education seems to be promoted by this four-year sequence in the following ways: first, by the combination of English and social science in the introductory course in Community Life, a combination which enriches both subjects and in addition saves a year of instructional time; second, by the exclusion of unimportant data from the minimal essentials which comprise the units of each course; third, by the attention given to matters ordinarily left to the care of the English Department, a practice which, from the standpoint of English, is wasteful in its failure to make correct expression habitual and, from the standpoint of social science, is wasteful in its non-insistence on that clarity of thought which obtains only when there is clarity of expression.



## CHAPTER VIII

### A PROGRAM FOR THE SOCIAL STUDIES IN THE JUNIOR AND SENIOR HIGH SCHOOL

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Ten years ago the term 'social studies' had little, if any, definite connotation. Then, in 1915, came the bulletin on "Community Civics," followed two years later by the report on the "Teaching of the Social Studies." These bulletins aroused much discussion and no little constructive experimentation. Before this, history, with smatterings of incidental geography and government, had filled the entire field. Within the past ten years, however, various groups have made their demands on "history," each desirous of lopping off a more or less definite sector for itself. The first to attack was the political scientist who desired his own place in the curriculum. He was followed by the economist, the sociologist, and the geographer. Most of these attacks have come from the entrenched positions of nationally organized associations. Recently each of these groups has put forward its program for the schools. The chief points of difference with these specialists lie in the selection of subject matter and in emphasis. Each in his own way is a special pleader for his own subject. The problem is further complicated by the attack of educators and psychologists on the method of teaching these subjects, while the administrator waits with what resignation he can command, hoping that some semblance of order will come out of all this disagreement and confusion.

This brief introductory statement is necessary if one is to understand the conditions out of which the need has arisen for a constructive program in the field of the social studies. At the outset I wish to make my position clear, namely, that I am not so much interested in "the social studies" as in "a social science." I am not one of those who believe in history or civics or geography



or any subject for its own sake. As a teacher of youth I do not have the specialist's interest in any of these subjects of study. I want to see the various tributaries—history, geography, civics, economics, sociology—each contributing to one main stream. This means a reorganization of worth-while materials in all these fields. Some of us have felt for a long time that a large percentage of the details of history is valueless, that much of formal geography is equally worthless, and that altogether too large an amount of the old instruction in government never has carried over into constructive citizenship.

Not only do we desire a reorganization of subject matter to meet the needs of the growing child, but we ever realize that he is growing, and that our method of approach in presenting further materials necessary for his growth is of the utmost importance. This is not the old controversial issue of materials vs. method. It is materials *and* method; the bow and the cord, “useless one without the other.”

#### REORGANIZATION OF SUBJECT MATTER

Although my own contribution to this discussion lies primarily in the field of method, I should like to pause here to point out very briefly the materials of history, civics, and geography which I should attempt to fuse into a single or unit course for the junior-high-school grades.

##### Grade VII

History: The World to 1789.

Geography: The Mediterranean basin; Western Europe; early trade routes; Latin America and Eastern North America.

Civics: The significance of the attempts at self-government in the old world. The beginning of communities in the new world; colonial practices; local history.

Practice in group organization: Current events.

##### Grade VIII

History: The World since 1789. (The whole field viewed in relation to the United States.)

Geography: The Near and Far East; The new Europe and its expansion. Physical and industrial geography of the U. S.  
 Civics: The growth of nationalism; the development of constitutional government; the march of democracy. How we are governed: city, state, and nation.  
 Projects in citizenship; Current events.

### Grade IX

History: A Survey of Modern World Relationships.  
 Geography: A World Survey; expanding commercial interests.  
 Civics: Elementary social, political and economic problems.  
 Projects in citizenship. Current events.

(Note: Three-fifths of the present time allotment for these three subjects should be in double supervised study periods, and the balance single periods with each day of the week provided for. There should be a running-fire of citizenship projects or activities all through these grades.)

It will be recalled that the Committee on History and Education for Citizenship proposed for the Xth year a course in Modern World History with emphasis on political, social, and economic development. For the XIth grade this Committee would continue the conventional course in United States history and civics, thus leaving the XIIth grade open for The Problems of Democracy.

Most of the discussion aroused by this report has centered around matters of content and emphasis. It is the purpose of this article, however, to present the question of method and to point out the possibilities that lie in the adaptation of the project point of view as a method of approach in the teaching of these social studies.

As a teacher of history for many years I have come to feel that history is not doing for our young citizens what the Committee of Seven said history should do. That report, issued in 1899, has come to be looked upon by many of us as the 'Old Testament' of the history teacher. It contained much that was, and still is, excellent. For instance, under the caption of *Training for Citizenship* we note the following as objectives of history: "It is true

that any subject which aids the pupil to think correctly, to be accurate and painstaking, which awakens his interest in books and gives him resources within himself, in reality fits him for good and useful citizenship." "History cultivates the judgment by leading pupils to see the relation between cause and effect." "The power of gathering information is important . . . but the power of using information is of greater importance." "A no less important result of history study is the training which pupils receive in the handling of books." "History is also helpful in developing the scientific habit of thought." "The thoughtful teacher of experience will say that these prime requisites of wholesome education may in some measure be cultivated; and that when opportunity for comparative work is given in the later years historical-mindedness may be so developed as materially to influence the character and habits of the pupil."<sup>1</sup>

"The thoughtful teacher of experience will say," in fact is saying, that these objectives, splendid in themselves in training citizens, are not realized from the study of history as it is generally taught in our high schools to-day. Dr. Tuell raises this very question in the opening words of the preface to her helpful and forward-looking book, *The Study of Nations*.<sup>2</sup> "History in the schools has recently been put on the defensive, challenged as a failure in its civic functions. Its established theory in the minds of its critics crumbles for lack of definite social purpose."

### An Experiment in History Teaching

In this connection I wish to speak of an experiment in history teaching that we have been trying out at the Horace Mann School. It is a course in Modern European History (1815-1922), and the class is in the last year of the junior high school. We have taken as our objectives the citizenship concomitants of the Committee of Seven, as listed above, and our general method from John Dewey: "The true starting point of history is always some present-day

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<sup>1</sup>W. H. Kilpatrick. "What shall we seek from a history project?" *The Historical Outlook* June, 1922.

<sup>2</sup>Harriet E. Tuell, *The Study of Nations: An Experiment in Social Education* (Riverside Educational Monographs).

situation.” Realizing that, if this method were followed, the class would not have the customary chart and guide in the form of the chronologically arranged text, the instructor outlined at the start for his own guidance the main forces at work during the period he was developing. It was his hope to leave definite impressions of these forces, which he listed in his record book as follows: (1) The Industrial Revolution, (2) The Growth of Nationalism, (3) The Expansion of Europe, (4) The March of Democracy, (5) The New Europe. First came a quick review of the leading events of the eighteenth century and these with dates were arranged in a chronological bird's-eye-view chart, with space reserved for the nineteenth and twentieth centuries to be filled in as the work progressed. A civic notebook was kept by each member of the class and this became the seed-bed of many of our projects. A special shelf was reserved for us in the library, and in addition to these reference books, the class subscribed to a current events bulletin, and used freely newspapers, weeklies, magazines, and several of the standard general reference works and encyclopaedias. Early in the year we organized in a parliamentary manner with chairman, secretary, and activities committees, determined by our needs. Then we pictured Europe as it was after the Congress of Vienna, and each student prepared a colored map of Europe in 1815.

#### THE METHOD OF ATTACK

With this as background we were ready to ‘hop off.’ The special method determined upon by the instructor was the project method of approach as advocated by Kilpatrick.<sup>3</sup> Now, it is not my contention that we lived up to all the requirements or possibilities of the project method. We tried, however, in each case to get as large an amount of the essential four steps—“purposing, planning, execution, and judgment”—as possible into each project, and the more we succeeded in doing this, the better were our results.

The initial project required considerable ‘setting of the scenery’ on the part of the instructor, but the one finally determined

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<sup>3</sup>W. H. Kilpatrick, “The project method,” *Teachers College Record*, Sept., 1918.



upon was this: "The progress of labor and how it affects us to-day." This is as the class worded it. They gave as their reasons for this particular selection their desire to "understand something of the causes of the dispute between labor and capital," "the meaning of certain terms which they heard or came across in their reading," *e.g.*, collective bargaining, open-shop, injunction, I. W. W., Bolshevism, etc.; their natural desire to "comprehend the conversation at home" and to "understand the significance of the cartoons they saw in the newspapers and weeklies." In this particular case we followed the chronological method, beginning with the story of the wonderful inventions of the last of the eighteenth century. Their civic notebooks swelled with clippings on the labor problem; there was much open discussion in class; a cartoon was brought in each day, its significance explained and placed in the "cartoon corner." The teacher was astonished many times at their grasp of points at issue. They said they talked it over at home and read the newspapers and weeklies more. They told each other of good material they found. On almost any day eight or ten different sources, other than the text, were referred to by members of the class.

To be sure, this took time. I see by my record that we began this project on October 10 and finished it November 14. At the end of the work a committee was duly appointed to organize, in summary form, the material gathered in building up the project. This was mimeographed and each student was given a copy for her note-book. They called it their "irreducible minimum."

The next project entered an entirely different field, and one the instructor approached with certain tremblings of spirit: "Why is Ireland demanding Home Rule?" We had hardly started out when someone observed that many people in Ireland did not want Home Rule. So they reworded their project—a false plan, you see—and started in once more. We had not gone far when my fears were justified. Feeling ran high with some of the pupils, and comments were made on both sides of the question in no uncertain tones—a real social situation. After one of these outbursts the instructor at the next meeting of the class took the occasion to read Franklin's plea for harmony at the Constitutional Conven-



tion. He made no comment or preachment. But there was no question of its direct application. "Light, not heat" was placed upon our "Watch this spot!" board. The class rallied to the ideal; the social disapproval of the group was manifest whenever anyone broke out after that, and when we came to the end of the project they wished to carry it further with a good debate. A class discussion was held with the president in the chair to ascertain whether or not this could be done on the "Light, not heat" basis, and the "light" won. So speakers were chosen by the debating committee to defend the three aspects of the situation, present status, Home-Rule, and independence.

The test at the end of the work was this: "What are the possible solutions of the Irish question? Which do you favor and why?" Throughout the developing of this project the teacher had in mind bigger things than fact content. He was after tolerance, courteous tone of voice, balanced judgment, and open-mindedness, with convictions based on facts.

Another project which the class worked out this year was: "How was Switzerland able to maintain her neutrality during the World War?" In this last project a most interesting and natural discussion arose over the Swiss compulsory military system. Would it not be a good plan for the United States to adopt such a system? The class was fairly evenly divided, so each wing chose two champions and the debating committee arranged a meeting.

One day while this Switzerland project was under discussion a visitor remarked at the end of the hour: "I came in a little late, and although I have listened intently for nearly forty minutes, I do not know now whether this is a class in geography, history, or civics." I could not help him out much in giving him the proper label, but asked in my turn if the project could be answered without some study of the geography, history and government of Switzerland? At least we felt that they were all "grist to our mill;" and this points out, by the way, a perfectly natural and not a dragged-in correlation, a fusion, in fact, of materials from all three fields.

Other worth-while projects were proposed and carried through by the class before the end of the year. For example:

1. How did France become a permanent republic?
2. How did constitutional government come to England?
3. How did Italy become something more than "a geographical expression?"
4. Why is Japan one of the five leading nations of the League?
5. Is Canada a self-governing state?
6. Why is Poland demanding her "ancient rights and privileges?"
7. The League of Nations: What is it?

Many such pertinent questions as these, which bear directly upon the social, political, and economic phases of modern life, rise very naturally to the lips of pupils awake to present-day conditions. It is one of the chief duties of the teacher to stimulate these natural interests and then guide them intelligently. To be sure, the teacher himself should understand very definitely what he is driving at and where he is going. He should have so chartered the course that at the end of the year's work the class would have "covered essentials," although in no page-by-page fashion.

Some will criticize such teaching as this by saying it is a 'hit-or-miss' method; there will be 'chronological confusion' and 'no semblance of order in the assembling of historical data.'

Thorndike, speaking of the logical versus the psychological in history teaching, says: "It has, indeed, seemed indubitable to teachers as well as to writers of textbooks, that the student should begin where the country began. But what has seemed so sure is very questionable. The pupil actually begins with knowledge of the present condition of his own environment, plus a variable and chaotic acquaintance through talk and books, with facts located vaguely in other places and earlier times. Perhaps the story of the voyage of the parents of some pupil in the class should precede that of the voyage of Columbus."

"Chronological confusion" and "disordered historical data" come often enough to the best pupils of the best regulated classes taught in the old formal method—witness the position of history at the bottom of the list in the College Entrance Board examinations. Moreover, the chronological chart, referred to above, was devised so to arrange leading events and great movements that

their proper relationship would be seen, just as the mosaic, built up piece by piece, brings out at the end the completed figure.

It is also the opinion of educators that on the basis of "information" or "fact content" the sum total will be as great under this method, and will be so developed and arranged as to be more ready for use and consequently better retained in memory. The summary, or "irreducible minimum," built up at the end of each project, prevents the informational material from becoming scattered. This class was tested at the end of the year's work by an examination set by other instructors, and the "fact-content" measured up very satisfactorily with that of other classes, not taught by the project method, covering the same field.

Others object to this method on the ground that it takes a great deal of time both in class and in preparation on the part of the teacher. Both these statements are undoubtedly true. The experiment has shown, however, that as the work progresses the class comes to work more speedily. They grow more accustomed to using their historical tools, and we find out quite frequently how a tool used in solving one project is employed again in helping to fashion another. For example, they understood the meaning of the term "economic boycott" in their study of the League of Nations, because they had used that term in the project on the Progress of Labor. It was a very interesting thing to note their adaptability in using these cross-reference tools.

Others are skeptical about the use of such a method as this with the "average public school pupil." I have taught in public schools for fifteen years and have no fears on this particular point. The fact that in our cosmopolitan high schools the pupil body comes in contact more directly with a greater variety of outside interests than does the pupil body in an exclusive school, would be a distinct advantage for the former in arousing interest and in building on this interest. The fact that the method advocated would necessitate adequately trained teachers is not a valid argument against the method itself. This is an old complaint, and a real one, and our administrators are faced to-day, as never before, with the problem of securing properly trained teachers in the social studies field. Professor Parker makes the statement that it

will take four years of training in service in order to prepare teachers so that they can handle the project method.

The writer is aware that there is little that is new in this particular approach. Others have pointed out the distinction between the 'assimilative' and the 'cold storage' methods in history teaching. This is simply one experiment where the project has been used as a basis in the developing of a particular period in history. As an experiment it is open to criticisms and it welcomes them. After three years of careful open-minded observation of this method, it is my belief that the results justify the conclusion that as an educative process it is worth giving a wider application. It leads the pupils to purpose intelligently and then guides them in planning and executing the particular project in hand. They find out how to get the information they need in the natural way, while the classroom discussions and debates develop independent judgment and open-mindedness.

*Class Organization of a Project Studied in 1920: "The irreducible minimum"*  
*"Why Japan is a 'world power' and what are her relations*  
*with the United States?"*

#### I. Geography

- A. Position—just off the northern coast of China in the Pacific Ocean.
- B. Area—about size of California
- C. Surface
  - 1. Mountainous—volcanic origin
  - 2. Irregular coast line
  - 3. Numerous rivers
- D. Principal Cities
  - 1. Tokyo (capital)
  - 2. Yokohama
  - 3. Nagasaki
- E. Industries
  - 1. Agriculture
    - a. Rice
    - b. Tea
    - c. Camphor
    - d. Silk
  - 2. Fishing
  - 3. Mining
    - a. Small deposits of gold, silver, and copper
  - 4. Manufacturing

## II. National Characteristics

## A. Racial Stock (see history) . .

## B. Characteristics of race

1. Patriotism almost a religion
2. Very great sensitiveness on points of national and personal honor
3. Resentment of any slights by Occidental nations
4. Social and economic fellowship
5. Politeness and good form
6. Love of beauty
7. Ability and willingness to adopt and adapt methods, ideas, institutions from other countries.

## C. Manners and Customs

## 1. Dress

- a. Kimono, national costume

## 2. Homelife

- a. Much is thought by Japanese of home and family

## 3. Position of women

- a. More respected and more rights granted to them since Japan's change

## D. Religion

## 1. Shintoism

- a. Reverence for ancestors and nation
- b. The national and original religion

## 2. Buddhism

- a. Code of morals
- b. Introduced from India.
- c. Religion of Common People

## 3. Confucianism

- a. Code of morals
- b. Introduced from China
- c. Religion of higher class

## 4. Christianity

- a. Introduced by Portuguese in 17th century

## III. History to 1853

## A. Early Peoples—"A melting pot."

## 1. Cave dwellers

- a. Small and undersized

## 2. "Hairy Ainu"

## 3. Malay invasion—Yamato race

## 4. Invasions from Korea and Northern China

## B. Feudal Wars

## 1. Feudal Nobility

## 2. One head, Mikado



- 3. Classes of People
    - a. Samurai—soldiers
    - b. Farmers
    - c. Peasants and laborers
  - 4. Shogun becomes real ruler
  - C. Coming of Dutch, Portuguese and Spanish in 17th Century
    - 1. Trade established
    - 2. Christianity introduced
      - a. Quarrels among religious sects
  - D. Shogun expels all foreigners
    - 1. Japan's sea wall—200 years
- IV. Japan from 1853 to the end of World War
- A. Coming of Commodore Perry
    - 1. Forced entrance
    - 2. Concessions of trade granted to other countries
    - 3. New ideas and customs brought by modern nations
      - a. New banking system
      - b. National currency
      - c. Education: modern system based on that of United States
      - d. New industries
      - e. Christianity re-introduced
  - B. Chino-Japanese War, 1894-1895
    - 1. Causes
      - a. Dispute over possession of Korea
    - 2. China defeated
    - 3. Results
      - a. Formosa to Japan
      - b. Korea independent
      - c. Beginning of Japanese expansion on Continent
  - C. Boxer Rebellion
    - 1. Japan helped other nations to suppress uprising in China
  - D. Russo-Japanese War
    - 1. Causes
      - a. Fear of Russian domination in the East
    - 2. Japan victorious on land and sea
    - 3. Treaty of Portsmouth
      - a. Japan gains Korea and one-half of Sakhalin and leases Liaotung Peninsula
  - E. Japan's Part in the World War
    - 1. Reasons for entering
      - a. Treaty with England
      - b. Revenge on Germany because of previous relations
      - c. To extend influence in China

2. Part played
  - a. Captured Kiauchau
  - b. Takes over Germany's lease on Shantung for 99 years
  - c. Supplied Russia with munitions
  - d. Troops in Siberia
3. Peace Conference
  - a. One of five leading nations
  - b. Opposed China for return of German territory
  - c. Japan holds mandate over former German possessions in lands north of the equator

## V. Government of Japan

### A. Remarks

1. Modelled after Government of German Empire
2. Not responsible
3. Influence of Elder Statesmen greater than that of Diet

### B. Mikado—"Ruled for Ages Eternal"

Privy Council

Premier

Imperial Cabinet

Nine ministries like United States Cabinet

Representative Institutions

#### 1. Upper House

Five classes of members

Nobles, scholars, largest tax payers

Elected in different ways for different periods of time

#### 2. Lower House

Members elected by common vote

Number regulated by population

## VI. Japan's Relations With the United States

### A. Period of Friendship

#### 1. Perry opens Japan

a. Students to United States

b. Missionaries to Japan

c. Educational System from United States

#### 2. Gentlemen's Agreement

### B. Period of Mutual Distrust

#### 1. Causes

a. Immigration to Pacific Coast (California)

b. Objection to Japan's policy in the Far East

c. Fear that Japan will violate the Monroe Doctrine and that she has designs on Philippines and Hawaiian Islands.

## C. Solutions

1. Morris-Shidehara agreement
  - a. No discrimination
  - b. Japanese Nationals shall be given equal rights as other aliens
  - c. Land laws shall be the same for all aliens
  - d. Japanese do not want American citizenship
2. Gentlemen's Agreement
  - a. Excludes all immigrants from Japan to United States and Hawaii except students and tourists
3. Suggestions of Frank A. Vanderlip
  - a. Japan must be dealt with carefully because of sensitivity
  - b. Japan must have room to expand as it is not probable she will become an industrial nation
  - c. Nothing can be accomplished until there is a better mutual understanding between Japan and the United States

## SPECIMEN CLASS REPORTS

The class was called to order in Room 305 on Friday, Feb. 6, 1920. The minutes of the previous meeting were read and approved. Copies of *Current Events* were given out. Then the committee, Ethel Kelly, Eleanor Lindsay, and Minnie Mehlin, who prepared the outline on the Russian project, made their report. The class did not like this report, as it was "too much like a teacher's outline," so they were instructed to do it over again and put in more definite facts. The comparative charts on the Governments of the United States, England, and France were collected. We discussed our new project and decided on the League of Nations, but did not come to a decision as to how to word it. For home work we were to mark in our copies of *Current Events* anything that was "grist to our mill," gather what material we could on the League of Nations, and think upon a wording for our new project.

Respectfully submitted,

NANCY WILSON, Sec'y.

The class was called to order in Room 306 on Thursday, Feb. 12, 1920, by the president. The minutes of the previous meeting were read and approved. We then voted on a name for our next project. From the list of: "What is the League of Nations and will it make the world safe for democracy?" "The League of Nations: What is it?" "Should America enter the League of Nations?" "The effect of the League of Nations on the world," we decided upon "The League of Nations: What is it?"

We discussed the method of going to work on this project and we decided to make out a chart. A copy of the "League of Nations Covenant" and the "New Map of Europe" was given to each girl. We then went over our

*Current Events*, seeing how many things there were in it about anything we are or have been working on. Mr. Hatch told us some interesting Lincoln stories. For home work we were to read over, "mull" over and write out the "gist" of the first five articles of the League of Nations. The class was dismissed at 1:20.

Respectfully submitted,  
NANCY WILSON, Sec'y.

The class was called to order in Room 305 on Friday, March 5, 1920, by the president. The minutes of the previous meeting were read and approved. We discussed the form our League of Nations chart should take, and then whether we should have another history period a week. A motion was made that we should have another history period a week, and it was amended that it be the third period on Friday. The amendment was amended that we should have no home work for that extra period. The amendment and the amendment to the amendment were passed, and as the vote on the motion was a tie, the president cast the deciding vote in favor of the motion. A motion was made and passed that we send a delegation to Mr. Pearson concerning the extra period, two girls representing the majority and one from the minority. A motion was defeated that the chair appoint the three girls. We decided by vote to leave the selection of the delegation to Mr. Hatch, who said that the girls in favor of the motion that we have the extra period should choose their two delegates themselves and that the rest of the class should choose their representative. For home work we were to complete our writing out of the articles of the League of Nations and if possible to begin our charts. The class was dismissed at 2:00.

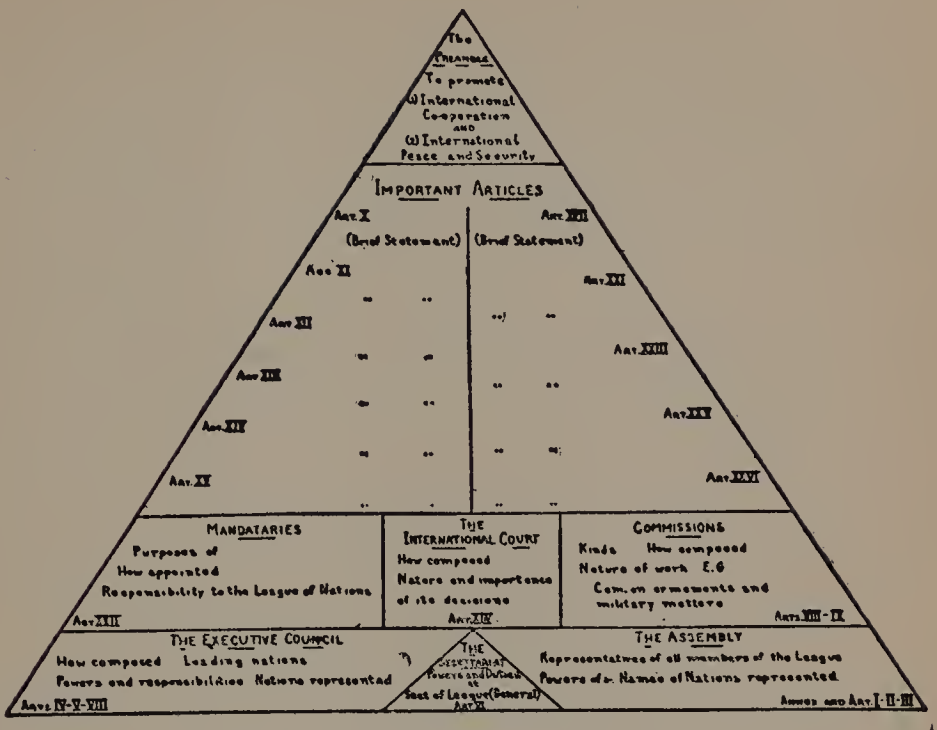
Respectfully submitted,  
NANCY WILSON, Sec'y.

Two charts, one of the League of Nations Covenant and one on Comparative Governments, are exhibited to illustrate the work of the pupils. The latter chart formed a portion of the project: "How Did Constitutional Government Come to England?"

For one entire term this "Project Class in History"<sup>4</sup> was observed regularly by my Teachers' College class of mature students, composed for the great part of teachers of some experience and training in history. One object of this paper is to record the reactions of this group of college observers and also the reaction of the pupils of the classes themselves.

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<sup>4</sup>The method of setting the projects, the materials used, pupil charts and summaries, as well as typical answers to test questions are given in fuller detail in the November, 1920, issue of the *Teachers College Record*, Columbia University.



## CHART OF THE LEAGUE OF NATIONS COVENANT

I asked both of these groups to give careful thought to this question: "What do you consider to be the good and the bad features of the project method?" The answers in all cases were handed in without any name attached. From the replies I have listed the following, avoiding unnecessary repetitions, but giving in their own words their conclusions for and against the project method as I have interpreted it in my teaching procedure with them.

I will first give the answers of the Horace Mann pupils. In nearly every instance there was a majority vote of the class favoring the statement as given.

*Good Features:*

1. We have overcome the difficulty of getting enough references by going to many different sources for enough material so that everyone may be prepared each day.
2. We learn how to organize materials for ourselves and do not have everything prepared for us by the teacher.



A CHART (15 x 35) ON  
COMPARATIVE GOVERNMENTS

	United States	England	France	Other Nations
<i>Nations</i>	(Flag)	(Flag)	(Flag)	1. Japan 2. Switzerland 3. Italy 4. Brazil 5. Belgium 6. Spain 7. Germany (before 1914) etc.
<i>Head</i>	President: Woodrow Wilson. Qualifications. Term, Powers, etc.	King: George V. Hereditary Mon- arch. Powers, etc.	President: Paul Deschanel. Term, Powers, etc.	
<i>Cabinet</i>	Appointed by President. List name and position of each.	Prime Minister: Lloyd George. Method of elec- tion. Responsible government.	Prime Minister:  Millerand Powers.	
<i>Upper House</i>	The Senate: Qualifications. Term. How Elect- ed. Senators from N. Y.	House of Lords: How composed. Present day powers. Act of 1911.	The Senate: Number, term. How elected. Powers.	
<i>Lower House</i>	House of Repre- sentatives: Qualifications. Term. How Elect- ed. Powers, etc. District repre- sentative.	House of Com- mons: Number. Term. How elected. Importance of.	Chamber of Deputies: Number, Term. How elected. Importance of a "bloc."	
<i>Remarks</i>	The Supreme Court. The Constitu- tion.	The Unwritten Constitution a. Magna Charta. b. Bill of Rights. c. etc.	The III Re- public and the Constitu- tional Laws of 1875.	

3. We do our arguing and discussing on the basis of "light not heat," and are becoming more broadminded.

4. We gain more lasting information because we have rooted it out for ourselves.

5. It trains us logically—to think clearly and to get our ideas over to the class.

6. The girls have attained an independent attitude of studying and we are getting along much faster.

7. Our discussions are usually the most helpful part of our lessons.

8. Getting and putting things together from the library has helped us a very great deal, not only in history but in everything.

9. Our interest in current literature has been stimulated.

10. We learn how to do things, how to work out our own problems.

11. We learn to thrash out questions for ourselves, instead of relying on textbooks.

12. The girls are more interested and will work harder. They will remember what they learn because they choose the subject and build it up themselves.

*Bad Features:*

1. We are not yet able to curb unnecessary discussion.

2. We talk too much about "the project method" and what we are going to do next.

3. The home-work assignments are indefinite, although we are improving in this respect.

4. Too much time is spent on one project.

5. It is hard to get references that bear directly on the point of discussion.

6. There is a tendency to wander off the track when becoming interested in something else.

7. We do not do our home work regularly.

8. Too much of the work is carried by a few pupils.

9. The girls who do not do outside reading can get away with it without anyone noticing it.

10. Too much time was spent on the negro problem, but that difficulty has been successfully met in our last project, on prohibition; but the matter still can be improved.

11. We could not go to college on the project method because we never can limit ourselves to any length of time, therefore we could not cover enough ground. (Class about equally divided in its opinion on this last statement.)

From the answers handed in to me by my observers from Teachers College, who have followed the work daily from the beginning of the spring term, the following expressions were compiled. In order to get a general response, both pro and con, I asked the group of regular observers to vote on each statement and have appended their answers, giving the "Yes" vote first in each instance.

*Advantages:*

1. Tolerance of the opinions of others, open-mindedness, and good will. (8-0)

2. Self-reliance, *i.e.*, ability to go and gather useful information. (8-0)

3. The beginning of a scientific and critical attitude toward material. (8-0)

4. General orderliness: (very good [5]; good [3]. Discipline shifted from teacher to group itself: self-government.
5. A get-together spirit and ability to cooperate. This is a remarkable feature. (8-0)
6. Good followship and good leadership. (8-0)
7. Acquiring the power to participate in worthwhile constructive discussion. (8-0)
8. An aroused and increased interest. (8-0)
9. Wholehearted activity stimulated in pursuit of knowledge. (7-1)
10. Remarkable facility in using parliamentary procedure as an instrument in conducting class affairs. (8-0)
11. The teacher is "not dethroned." Is in center of the group as adviser and guide instead of dictator. (8-0)
12. Responsibility for the conduct of the work felt to rest on both teacher and pupils. (8-0)
13. Life situations approximated. (7-1)

*Disadvantages:*

1. Loss of time in ground covered due to parliamentary discussion. The latter, however, felt to be distinctly worth while; a question of relative values. (7-1)
2. Loss of time due to needless discussion, but the class is conscious of this fault and is trying to overcome it. (8-0)
3. A lack of continuous and severe mental work. (3-4)
4. The slower student seems to demand more definiteness in the daily assignment. (7-1)
5. Getting beyond the depths of the pupils so that they talk about things without clearly understanding them. (2-6)
6. Certain required subject-matter slighted. (1-7)
7. Non-participation on part of some members of the class is greater by this method. (3-5)
8. Encourages the expression of opinion not founded on sufficient knowledge. (2-6)

These replies furnish the evidence as to the success and failure of our particular application of the project method. I have purposely arranged these lists so that the dangers and difficulties not successfully overcome should stand last, and consequently leave the stronger impression. For to every one of us who believes in the project method here lies the challenge and here our opportunity.<sup>5</sup>

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<sup>5</sup>Quoted in part from *Journal of Educational Method*. Oct. 1921.

THE XI<sup>TH</sup>-YEAR COURSE

One of the most frequent criticisms of this kind of teaching lies in the oft-repeated phrase: "You cannot fit for college by the project method." Last year my XI<sup>th</sup> grade class in United States history and civics took up this challenge. As one of them expressed it, "Let us make it our project to fit for college by the project method."

At the start we selected the main points of emphasis or essentials of our year's work and listed them as follows:

1. Our Ancestors in Europe
2. Our Natural Inheritance
3. Our Social Inheritance
4. Our Retreating Frontier
5. Our Developing Constitution
6. Our Industrial Progress
7. Our Financial System
8. Our World Relationships
9. Our Present-Day Problems

Some of the projects they carried through were the following:

1. How has the modern map of the world proved to be different from that of Ptolemy? (Westward Expansion)
2. How have our ideals of government changed since the days of Magna Charta? (Study of the Constitution)
3. What were the causes, leading operations, and results of the war for Independence?
4. Trace the development of the financial history of the United States from the days of Hamilton to the Federal Reserve system.
5. What were the underlying causes and results of the Civil War?
6. What has been the policy of the United States in regard to its foreign relations?
7. What have been the causes of the rise and fall of political parties in the United States?
8. Several of our present-day problems were listed and studied as separate projects.

This year's work in some respects was not satisfactory. The organization of the subject matter proved more difficult than for the field of Modern European history. We held more closely to the text and curbed discussion. The class encountered the College

Entrance Board examinations and the results were about the same as in previous classes under my instruction. I believe, however, that another year will find our organization much more efficient and, having profited by past experience, the teacher will be able to guide more skillfully. All this, however, is not to be construed as an admission that I accept the judgments of the College Entrance Board as worth-while objectives in history.

#### THE XIIITH-YEAR COURSE

"Social, Economic and Political Principles and Problems" is the course designated for the XIIth grade. This should be the crowning year of the high school. Here it is that we have the right to expect clearer thinking, a more intelligent grasp of subject matter, the ability to evaluate evidence, and the display of open-mindedness. To be sure, the teacher must be ever on guard against superficiality, snap-judgment, and "the forensic display of ignorant opinion." "The essence of critical thinking," says Dewey, "is suspended judgment," and that should ever be the ideal held up before these young citizens as they study and discuss the many vexing problems of the world in which they live. "The hope of democracy," as Lincoln characteristically phrased it, "is that eventually the people will wobble right." Unanimity of opinion is too much to expect. But if our democracy is to "wobble right" more often than otherwise, we must give our young citizens an opportunity to use and practise it daily in their school life. The only way to gain open-mindedness is to exercise it in class. "The forensic display of ignorant opinion" and the sober expression of intelligent opinion must meet daily in class discussion and fight out their age-old conflict.

These "Present-Day Problems" adapt themselves most naturally and readily to the project method of approach, as, for instance:

1. How has the United States developed its present system of finance?
2. What are the possible solutions of the negro problem?
3. Which of the five types of city government would be best for our city?
4. What are the causes underlying the crime wave and what remedies could best meet the situation to-day?



5. What are some of the suggestions for a fairer distribution of the social income?
6. How did political parties originate in the United States? What do they stand for, and how do they operate?
7. Would it be wise for the United States to join the League of Nations?
8. Should the government of the United States own and operate its own coal fields? Railroads?
9. What are the arguments for and against government paper money?
10. Should the XVIIIth amendment to the Constitution of the United States be retained, repealed or amended?

It would be unwise, in my opinion, to organize "The Problems of Democracy" so that the group would merely study one problem after another, in a more or less hit-or-miss and unrelated fashion, and with little or no background to give the proper perspective. These "Problems" fall naturally into groups: social, political, and economic. Some, to be sure, like the race question, contain aspects of all three. For those problems of a political nature the pupils have already obtained considerable background and general relationship through their study of United States history and government the preceding year. This cannot be said, however, for those of a social and economic character, and so this background must be supplied before the pupils begin the study of cases rising out of them. This, I believe, is particularly true in respect to economic questions.

To be sure there are "Dangers and Difficulties."<sup>6</sup> Several of these have already been pointed out. One must be particularly careful to guard against superficiality. This would be particularly true if one attempted to cover too many of these problems in the course of the year's work. It would be far wiser to take a smaller number, cover essentials, and learn how to attack them independently.

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<sup>6</sup>"Dangers and Difficulties of the Project Method, A Symposium: Kilpatrick, Bagley, Bonser, Hosie, and Hatch." *Teachers College Record*, Sept., 1921.

## THE PROBLEM OF COLLEGE ENTRANCE EXAMINATIONS

We are desirous of seeing this course raised to the level of other college entrance subjects. Progressive schools, in line with the recommendations of the several national committees of the social studies group, have installed such courses, and some of these schools are already asking the colleges for recognition. The colleges, however, have hesitated, chiefly because of the great difficulty of determining the field for examination purposes. There is no standardized course, and there should not be. It covers no definite field, like "Modern European History," for example. Each teacher, therefore, is more or less a law unto himself, both as to content and method. A flood of texts with widely different organization and materials have appeared recently, and still there are more to follow.

Under these conditions what can be done to meet the reasonable demands of the colleges? College entrance examinations might be so arranged that any given group of questions would be based on related problems. For instance, Group I might advisably consist of three questions in which the problems were mainly of an economic character and the student be required to select one from this group. A political and a social group could be similarly organized. These might well be followed by a list of general topics, one to be selected by the student, organized and discussed at length. This would bring out the pupil's grasp of materials, his power and ability to express himself clearly and evidence of his outside reading and research. A third type of question might list fifteen brief topics, *e.g.*, "Gresham's law," "the closed shop," "the *laissez-faire* policy," "legal tender," "the commission plan of city government," "the short ballot," "the three per cent immigration law," "the I and R," etc., and the candidate then be asked to write on ten of these.

Such an examination as this would provide the necessary definiteness within an otherwise unlimited field. It would also help greatly if the colleges would make an additional statement in their requirements for this subject which would list several of the leading problems in the three groups, economic, social and political, stating that they would set their examinations within these limits.

Such steps as these would be of great service at just this time. If the colleges will cooperate with some of the leading preparatory schools, some such course as the one outlined here might well take its place with those other subjects in the same field as equally worthy material for college entrance.

#### USE OF "CIVIC ACTIVITIES"

Thus far in this article we have considered in the first place the re-organization of subject matter and secondly the method of attack. No program for the "social studies" would be complete, however, unless adequate provision was made all along the line for a running fire of civic activities. I am now referring to the training that comes from the actual participation by the pupils in school or group activities when the objective is training in citizenship. These are the civic activities we are hearing so much about, and need to hear more about. Many schools are experimenting along these lines, and we need some sort of exchange so we can compare results, keeping the worth-while and discarding the detrimental. Right habit formations are what we are after. All the activities of the school contain potential citizenship material. Many of these activities develop in, or arise naturally out of, the social studies field, and it seems to fall to the lot of the teacher of these subjects to guide the conduct of the young citizens in the society in which they move.

You doubtless remember the story that Petrarch tells of the old Greek who attended the games at Olympia. He was late in arriving and found it difficult to find a seat in that crowded amphitheatre. He was old and poorly dressed, and the Greeks jeered and poked fun at him as he passed from group to group vainly looking for a seat. At last he came to the Spartans, who rose as one man, and made room for him. On observing this action the spectators broke into applause, whereupon the old man observed: "All the Greeks *know* what it is good to do, but only the Spartans *practice* it."

Whatever the course of study, let us trust that there will be enough free play so that the teacher may seize the vital situation, incidental to all her classroom work, and drive in her citizenship

training through concrete applications, in school and out. A course of study that cannot be thrown out of the window when a real situation comes in at the door is a clog and a hindrance in the training of citizens. Sometimes as teachers we seem to forget the importance of developing character in the many contacts and reactions that come in just living together.

The following illustration of citizenship training in a real social situation occurred in our VIth grade. The class was unduly eager, so eager that they constantly interrupted the one who had the floor. The customary methods of repression were tried, but this lack of proper courteous behavior persisted. Earlier in the year the grade had organized itself into a Civic League with officers and constitution. At one of their League meetings arrangements had been made to conduct an old-fashioned New England town-meeting. The warrant was drawn up and posted in due form. The various articles dealt with real situations in their school community, and one of them read as follows: "To see what action the League will take in regard to courteous attitude in class." When the Moderator called up this article there was considerable open discussion; the worth-whileness of it was generally recognized and a resolution was passed to the effect that henceforth the League should be more courteous and mindful of the rights of others. But the matter was not allowed to rest here. A wrong habit must be made over into a right one. There was need of an ideal of courtesy which could only be realized by every-day activity in checking this particular fault—namely, interrupting others. An acrostic was drawn up which read as follows:

C—consideration and  
O—obedience  
U—you  
R—resolved  
T—to-day  
E—every day  
S—satisfactory to  
Y—yourself

This was placed on the board in colored chalk. It was the "ideal which should serve as a conscious guide to conduct." It was their ideal; they felt a responsibility in seeing that it was



lived up to. Whenever any member of the group 'broke over' after this, it was nearly always sufficient merely to point to the acrostic. This was done either by the teacher or by some member or members of the class. The social disapproval of the group soon made itself manifest. We were after a right attitude in a specific case; and it was our hope that the "tendency to act produced by the ideal would develop into an almost automatic action in accordance with the ideal." There were several especially difficult cases. Old habits are not easily changed, and made over into new. One hundred percent perfect was never realized. But the method employed was justified by its results.

In the junior and senior-high-school years are to be found splendid materials and opportunities for direct citizenship training in the every-day activities of the school and community. The General Association, The Students Council, Debating Societies, Literary and Social Clubs, Organizations for Charitable Purposes, Participation in Community Activities, Self Government in the School as exemplified in Supervised Study Halls, Traffic Squads, Election of Class Officers, etc.

"Action is the goal of civics teaching." This fundamental principle of Community Civics is to be found in the editor's preface of Mabel Hill's helpful book on "The Teaching of Civics." Dr. Suzzallo goes on to say: "The child who has tried to participate in any given situation will have a sense of reality about it that can never be had from conversation or books."

The student should be led to participate in the real civic activities of his community. He is a citizen now and has very definite present-day responsibilities. He should be given opportunities to 'live' his civics. There follow four illustrations of such opportunities.

#### 1. Class Nominations and Elections

The following plan has been used with success by classes in large city high schools:

- I. *The clerk.* The civics teacher acts as clerk.
- II. *Nomination papers.* All candidates must be placed in nomination by means of nomination papers. These papers are secured and signed in the following manner. Anyone wishing to take out a nomination paper must go



to the clerk and state that he wishes to take out a nomination blank for ....., giving the name of the candidate and the office. The clerk then looks up the record of the candidate and if he or she is found to be in regular and satisfactory standing, prepares a nomination paper. Twenty-five (25) signatures (this number, of course, may be adapted to size of class) are necessary to put a candidate in nomination, and they must be *bona fide* signatures of members of the class, with no duplicates or false names. Every voter may sign as many nomination papers for each office to be filled as there are persons to be elected thereto, and no more.

III. *Time of filing nomination papers.* All nomination papers must be in the hands of the clerk for inspection not later than.....

IV. *The election.* The election will take place on..... The class will go to the city polling-booth, Ward 3, Precinct 2. (If the civics teacher cannot secure a regular polling-booth with ballot-box near the school, he can rig up a polling-booth in one of the schoolrooms.) The ballots will be cast according to the regular Australian method, using printed ballots. Each voter should see to it that she is duly enrolled on the class or voting list. Specimen ballots will be posted in each classroom.

V. *The officials.* The Warden, Deputy-Warden, Clerk, Deputy-Clerk and Checkers will be appointed by the Clerk from members of the class.

VI. *The polls.* The polls open at.....and close at.....

## 2. Parliamentary Practice

There are few exercises more helpful than training in parliamentary practice. At first, of course, the organization must be simple and the rules of procedure not too complex. Let the class or group organize itself into a Lyceum with appropriate name and object and a simple constitution. Officials could then be elected according to the Australian system, and the regular order of business put through. The questions for discussion should, for the most part, be matters of their own knowledge and community of interest. It is to be doubted if any training we can give in our schools is more helpful in developing individuality and leadership than the training that comes from debating and parliamentary practice.

An unresponsive class, when organized along the lines suggested above, oftentimes surprises the teacher in its readiness to take hold of work of this sort. And, of course, the social attitude which is developed, reacts favorably in the regular classroom work.

A helpful little book showing how a club may be organized with a clear statement of the rules of procedure, typical constitution, etc., is *The Student's Handbook of Parliamentary Law*, Frederick Leighton, Oswego, N. Y. Price 20 cents.

### 3. A Court of Naturalization

The following plan may be used to exemplify the process of naturalization: Turn the auditorium or classroom into a courtroom. The teacher or some selected pupil may act as a judge, two clerks as recorders. Any number of applicants may be prepared to take out "First" and "Second" papers. Some are ready for "The Hearing" and "The Taking of the Oath of Allegiance." Every now and then some applicant comes forward with a special case. The Judge announces all questions in dispute, and determines the status of the applicant.

When the time comes for the Judge's charge and the taking of the Oath of Allegiance, a delegation of pupils, carrying the flag, can march in to stirring music. If the school has a cadet company or a scout troop, this can be worked out very effectively. Then one of the pupils might give an excerpt from President Wilson's speech before newly naturalized citizens given at Philadelphia, May 10, 1915; the exercise to close with the singing of "America."

The dialogue is natural, and can easily be worked out in advance. The questions asked should be taken from the regular forms: "Declaration of Intention" and "Petition of Naturalization." A very helpful book is: *Civics for New Americans*, Hill and Davis, Houghton, Mifflin Co. The Appendix of this volume contains information on "How to Become a Citizen of the United States."

### 4. Projects in Citizenship<sup>1</sup>

The young citizen must train his citizenship muscles if he would win for America.

See also the *Twentieth Yearbook*, Pt. I, of this Society, pp. 134-154.  
—Editor.

1. An anti-litter campaign, on school-grounds or in district or home street
2. Clean-Up week (A committee appointed by the civics class should report for study to the general city committee)
3. A campaign against the tussock moth, gypsy moth or common tent-caterpillar
4. The making of an outdoor running track, tennis court, or hand-ball court

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<sup>1</sup>All the civic activities listed below have actually been carried out by civics classes or clubs in the public schools. See the writer's "Projects in citizenship," *Historical Outlook*, Feb., 1922; also a 50-page booklet on "Projects in Citizenship," by R. W. Hatch, containing illustrated material giving civic activities, simplified rules of parliamentary procedure, type constitutions, creeds and slogans, dramatizations, and showing how to organize and conduct a debating society, a socialized recitation and project teaching.

Published by The Citizenship Company, Leonia, N. J. Price fifty cents.

5. Building of cement walks around the school yard
6. A campaign against bill-boards
7. A campaign for clean speech
8. A Safety-First campaign; "Don't Get Hurt"
9. A drive for better personal hygiene (be specific)
10. A campaign against the abuse of school property
11. A petition to the proper authorities to close a street for recreation purposes
12. A campaign against tardiness
13. A thrift campaign: plan individual budgets
14. The writing of cheerful, helpful notes to fellow pupils who are ill; a visiting committee
15. The collection of second-hand clothes, books or toys for proper distribution to nurseries, hospitals and worthy homes
16. The preparation of baskets for Thanksgiving dinners to the needy of the neighborhood
17. A Community Christmas tree
18. Exhibits of the products of school gardens, sewing circles, shop articles, canning clubs, etc.
19. The cleaning up of some spot of civic or historic interest, erection of an appropriate tablet or marker
20. A campaign for a "Safe and Sane" Fourth of July
21. Campaign for the proper observation of all patriotic or civic holidays, in school and out
22. The beautifying of a little park in the town or city
23. The making of a guide book of the vicinity
24. Fixing up the "old swimming hole" or a baseball diamond
25. Appropriate celebration of Constitution Day
26. A "swat the fly" or mosquito campaign
27. Beautifying and adorning the school building; correlating with all school subjects
28. Campaign against unsportsmanlike conduct at games
29. Appoint committees to inspect grocery stores, butcher stores, ice cream parlors, etc.

Such then is our program in the social studies in the junior and senior-high-school years. It comprises not only a different method of attack but a re-alignment of materials to be accompanied all along the line by a running fire of civic activities. Inspiration, information, participation: these are the three aims to be kept constantly in mind in the training of our young citizens.

## CHAPTER IX

### THE SOCIAL STUDIES PROGRAM OF THE DETROIT PUBLIC SCHOOLS

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It is a difficult matter to give in a single paper an adequate conception of a program as diversified as that of the social studies. While the Detroit program is in many respects very much the same as that of other cities of its kinds, certain points of emphasis may, for purposes of comparison and discussion, be of general interest. The following 'high spots' are listed as characteristic: (1) an administrative organization—platoon schools, intermediate schools, and high schools organized with a definite social-civic point of view; (2) a continuous course of study in the social studies, Grades I to XII; (3) development of student self-government as a phase of social-civic-economic instruction; (4) actual participation in social-civic-economic affairs through safety clubs, scouting, local, state and national elections, etc.; (5) a constructive interest in general social activities; (6) a system of plant visitation, private and public, with a view to developing social-civic-economic concepts through the observation of such activities; (7) the regular courses in history, geography, civics, sociology, economics, industrial history, etc.; (8) a point of view that recognizes the social studies as a means of adding to the social-civic-economic *experiences* of pupils; (9) the introduction of current materials with at least a partial selection of past materials from the point of view of their value in solving present and probable future problems; (10) an experimental study of curriculum materials. No attempt will be made to discuss the entire list of topics as here given.

#### THE SOCIAL STUDIES CURRICULUM

The Department of Social Studies<sup>1</sup> of the Detroit Public Schools has now for some time past been actively engaged in the reor-

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<sup>1</sup>This work is in charge of Mr. Arthur Dondineau, Supervisor of Social Studies.



ganization of the social studies curriculum. The point of departure in this work has been in the main that of analysis of social-civic-economic needs of every-day life rather than that of readjusting *subjects*. The following program, taken from a preliminary statement of aim, may serve to give the point of view:

The program includes (1) the listing of concrete objectives; (2) the determination of proper activities (experiences) for the development of these objectives (these may be things to do, things to observe or things to read about); (3) the placing of activities on their proper grade level through the actual classroom trial of materials; (4) the development of specific ways and means (methods) of handling the various activities. (The same method can not be applied indiscriminately to all activities.)

"The diagram following [here omitted for lack of space] represents a concrete listing of specific objectives to be attained on the various grade levels. The attainment of these various objectives listed will depend on the teacher's background and ability to view the social studies as actual public affairs of the past, present, and future. A study of the past is of value in so far as it assists in analyzing and understanding the present and determining the future course of events. In an analysis of human affairs the future is of more consequence to the average individual than either the past or present. The social sciences should provide the pupils with situations which *are actual social situations*, dealing with the main currents of public affairs which have their sources in the past or the present, but which, because of their complex nature and scope, are understandable only after a long period of observation. The objectives listed in the manner given are intended to suggest to the teacher the need of having a concrete program and a definite purpose on the part of the teacher and pupil in the study of social situations which constantly confront every active, interested citizen of our democracy."

#### SOCIAL-CIVIC-ECONOMIC INSTRUCTION THROUGH PARTICIPATION

The social studies employ a technical language. "Charters," "compacts," "habeas corpus," "selectmen," "trusts," "representation," "alliances," "patriots," "truces," "confederation," "nullification," "free trade," "legal tender," "internal improvements," "free silver," "impeachment," are for the most part vaguely understood by the average school pupil. There is such a thing as a word-education, an education that develops skilled manipulation of words and adds little to the real substance of life. The *fundamental* experiences (minimal essentials) of civic educa-



tion, limited in number though they must be, will doubtless in the future be increasingly given through actual participation in social-civic-economic affairs. The following Detroit activities are perhaps typical of the present tendencies in the social studies in that school system:

1. Student government in its various forms, directed not so much from the point of view of the best form of government as from the point of view of the best method of training pupils.
2. A recognition of the educative value of general social activities. Men do not succeed merely by their intelligence, abstract intelligence, reasoning. The social factors are important: cooperation, team work, group activities in and out of school. Many so-called extra curricular activities are rapidly becoming curricular.
3. School Elections. In 1919 the Detroit Schools initiated a plan of school elections whereby pupils in the sixth grade and above participate in local, state, and national elections. This is not a straw vote but an actual election with emphasis upon correct election procedure and the understanding of issues.
4. Scouting. The Detroit School-Scout Cooperation Plan was started in 1920. A Field Scout Executive<sup>2</sup> was employed by the Board of Education and turned over to the Detroit Scout Council for the purpose of developing scout troops in the schools. There are now 55 troops meeting regularly in school buildings with 35 of these actually affiliated with the schools.
5. Safety Clubs.<sup>3</sup> The following statement taken from the course of study in Safety Education will illustrate the plan:

"It is the common experience of teachers to find that the pupils, when they become interested in safety, want to form a club. The best form for such an organization to take varies, of course, with the age of the children and with local conditions. One first-grade teacher has a room of "Safety Helpers," and each week they choose some safety idea or some safe practice

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<sup>2</sup>Mr. Waldo Hunt, School Scout Executive.

<sup>3</sup>Miss Harriet Beard, Supervisor of Safety Education.

to work out, as individuals and as a class. "Safety Helpers" seems to be a popular name, and other suggestions are a "Life and Limb Club" or a "Citizens' League." In one school the eighth grade has organized a very efficient group of "Safety Patrols," distinguished by arm bands with the letters S. P., furnished by the school. The membership was confined at first to Boy Scouts, Girl Scouts, and Campfire Girls, but has been enlarged to include other pupils who prove themselves to be workers for safety. These pupils help the younger children across the street, report dangerous violations of traffic laws, and by their own care in observing safety laws exert a helpful influence in the neighborhood and set a standard for the school. Each room and each school may profitably have a safety committee or a safety organization. Members should be chosen from those who by their conduct have shown themselves to be working for the safety of others, as well as for their own observance of safety principles."

#### SOCIAL-CIVIC-ECONOMIC INSTRUCTION THROUGH OBSERVATION

In 1921, a plan for "plant visitation" was established. While the original plan was largely vocational, the scope of the work has been gradually enlarged to include the visitation of public buildings, civic undertakings, etc. The importance of this method of adding to a pupil's social-civic-economic experience has scarcely been recognized in this country. An undertaking of this sort has both administrative and instructional handicaps: (1) the average school organization provides for "recitation," but not for "observation;" (2) books of methods are in the main "methods of the recitation." Before observation can be carried forward most effectively there must be developed a technique of observation.

#### SOCIAL-CIVIC-ECONOMIC INSTRUCTION THROUGH LANGUAGE ACTIVITIES

The core of the social-civic-economic instruction in the Detroit Public Schools rests, as it does with most schools, in the studies: history, geography, economics, civics, sociology, industrial history, etc. The outstanding problem in this phase of the program is to find suitable reading materials. Professor Bobbitt<sup>4</sup> has given a commendable description of such materials in his discussion of occupational readings:

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<sup>4</sup>Bobbitt, *The Curriculum*, pages 108-9.

“Occupations are to be seen in their nation-wide and world-wide distribution. The means must be mainly reading. This will be largely narrative in character. As one reads concerning any occupation, the aim will be the reconstruction in the imagination of the reader of an inner world of occupational experiences in which, lost to sense of time and place, he can participate, as a shadow-member of the group, so to speak, and thus enter sympathetically into the experiences with an intellectual and emotional vividness not greatly dissimilar to that which accompanies actual objective observation and participation. As one reads *Captains Courageous*, for example, one is for the time, so far as his consciousness is concerned, a fisherman off the banks of Newfoundland, almost as completely as if he were there in the flesh. Then as one reads *The Lumberman*, one’s habitation is shifted to the wilds of Michigan in its early days, and one becomes an active and interested participant in the logging industry along the rivers.”

### CONCLUSION

For the most part the activities here described are those of the typical school of to-day. It has not been the writer’s aim to center attention upon activities, but to discuss the larger aspects of the social studies program. Not infrequently our discussion centers upon the more or less formalized phases of the work to the exclusion of the informal. The program of the future should rest upon a recognition of the place of observation, participation, and language activities in their larger relationships, to the end that we may have a more fundamental instruction in social-civic-economic affairs.

# CHAPTER X

## THE COURSE OF STUDY IN HISTORY IN THE UNIVERSITY ELEMENTARY SCHOOL AT THE STATE UNIVERSITY OF IOWA

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The course of study in history in the University Elementary School is frankly experimental. It represents an attempt to adapt the work of the first six grades to that of the junior and senior divisions of the University High School. This course is modeled on the course recommended by the Committee on Social Sciences in Secondary Schools. It provides for two cycles of European and American history, each chronologically arranged. For that reason it does not seem necessary to provide another cycle in the first six grades. Moreover, since the recommendations of this Committee place the European background in the seventh grade, the whole plan earlier recommended by the Committee of Eight is upset. This is quite a serious matter because of the fact that practically all of the books available for the first six grades are written to fit the recommendations in the Report of the Committee of Eight.

In this emergency several possible programs could be used in the elementary school. One could push the recommendations of the Committee of Eight ahead one year, presenting in general a chronological treatment of American history somewhat more difficult than has been the custom. While present books are not well suited to such a plan, this method is quite feasible. In fact, it has been effectively carried out in many schools.

At the time of the first report of the Committee on Social Sciences the staff of the University Elementary School decided to organize history in the first six grades strictly on the basis of dramatic interests. The whole purpose was to interest pupils in reading history. There was little class discussion of materials read. In fact, the class periods were spent chiefly in reading an interesting historical selection. The general plan was to read an

interesting selection aloud with the class and then allow members of the class to continue reading on their own responsibility. Books by such authors as Parkman and Roosevelt were used for this purpose. One year's experience seemed to show that it is possible to get considerable interest on the part of most pupils, but that the books read could very well be incorporated with those in the course of study in literature.

For the last six years the course of study has been organized in the following manner:<sup>1</sup>

In Grade I the time is given to simple problems in civics and to such history as lies back of special days.

The course of study in Grade II introduces the pupils to a very concrete study of the social and economic problems in an Indian community. The course here is very similar in emphasis to that reported by Miss Gilmore in the *Teachers College Record* for September, 1915, but is worked out in much greater detail. The following outline, taken directly from the course of study, illustrates the manner in which this course is organized. It represents one of the thirty main problems around which Indian life is taught.

#### SAMPLE LESSON ON INDIAN DYES

*The problem: Where did the Indians get their bright colors in making baskets, blankets, and mats?*

- A. Reports and discussions by children
- B. Outline for teacher's use

1. What could we find around Iowa City to use in making colors?  
Vegetables, nuts, leaves, roots, soft rocks, fruit, colored clay  
*Project.* Find what colors can be secured by boiling leaves, roots, fruits, etc. (Good color secured from osage apple, noting fact that just recently a substitute for German dye has been found in osage roots)

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<sup>1</sup>The following persons should be given credit for the samples of courses of study hereafter presented. For the course of study in Indian life, Miss Georgia Brown and Miss Frances Dearborn; for the course of study in pioneer life, Miss Mabel Green and Mrs. Ethelyn Weida; for the course of study on the history of medicine and improvement of health conditions, Miss Helen Davis and Miss Mabel Snedaker. The authors are also indebted to the following persons for suggestions in the final organization of the manuscript: Miss Maude McBroom, Director O. E. Klingaman of the Extension Division, and Professor Don N. Griswold, Associate Professor of Preventative Medicine and Hygiene, and State Epidemiologist.



2. What could the Indian have used?
  - a. Vegetable (organic) substances
    - Yellow—from twigs, and leaves of sumac, lichens, beech and willow bark, mustard, and peach leaves
    - Brown—from walnuts, butternuts, onion leaves
    - Brownish red—from alder bark
    - Purple—from grape juice
    - Bluish purple—from blueberry, elderberry
    - Red—from bloodroot, cactus, cochineal
    - Pink—from cranberry
    - Black—from gum of pinon tree
    - Nearly black—from oakbark, pokeberries
  - b. Mineral (inorganic) substances
    - Black—from charcoal, graphite, powdered coal, soot
    - White—from kaolin, gypsum, limestone (used to whitewash Pueblo bricks)
    - Green and blue—from copper ores, phosphate of iron, blue clay
    - Vermilion—obtained from the white trader
    - Red paint—from burned grass roots, blood and tallow, or from red clay
    - Yellow—from yellow clay
3. How was paint made? (See Skinner)
  - a. Materials collected
  - b. Pulverized and mixed with water
  - c. Baked until red hot
  - d. Cooled and put in bags
  - e. To use. Scrape off a little from cake and mix with hot grease
4. How was dye fixed so it would not wash out?
  - With juice of wild sweet scented crab
5. To what other uses were colors put?
  - Painting Indians' faces, bodies, arrows, pictures, tipis, etc.

#### C. Projects

- Make vegetable dyes (by washing and boiling. Put in receptacles for use in painting)
- Make cake of Indian paint (according to Skinner's method)
- Dip cloth in dyes made, or paint pictures and Indian designs

#### D. References:

1. For children's reports
  - Skinner. *Notes on the Plains Cree*. p. 81, Paints
  - Hodge. *Handbook of American Indians*, Vol. I. pp. 407, 408. Dyes and Pigments
  - Wade. *Ten Little Indians*. pp. 199-200, Making paint. Blackfeet
2. For teacher
  - Dellenbaugh. *North Americans of Yesterday*. pp. 303, 304
  - Pellew. *Dyes and Dyeing*
  - Elementary School Journal*. Feb., 1917
  - Hodge. *Handbook of American Indians*, Vol. I. pp. 403-404, Dry painting; p. 506, Paint; p. 514, White wash; pp. 407-408, Dyes and Pigments; pp. 325, 326, Color symbolism; p. 865, Paint mines; Vol. II, pp. 185-186, Painting, Use of brushes

Space is not available for presenting arguments for and against the teaching of Indian life in the primary grades. There is no question about the interest of the pupils in such material. It is the judgment of the various teachers who have taught this outline that it is a valuable contribution to the second-grade course of study. This much seems clear; if the study of Indian life is to make a contribution to the understanding of the economic and social problems of to-day, the subject must be presented with as much concreteness as is indicated in this outline.

The course of study in Grade III is concerned with the simple problems in a pioneer community. These problems are taken up quite in detail and are kept very concrete. The purpose of the course of study in the second and third grades is similar to that in the course of study in Dewey's Elementary School at Chicago. The intention is to give the child some insight into the major fundamental problems in a pioneer community and to show the inter-relationships which exist among these problems. This knowledge is then made the basis for the organization of the work in Grades IV, V, and VI.

The following problem will indicate how in Grade III the child is introduced to higher standards of living and to the more complicated methods which make these standards possible.

SAMPLE LESSON FROM GRADE III ON 'THE FOOD OF THE PIONEERS'

**Problems:** *How did the pioneers get their food?*  
*What foods did they have? What kinds? How did they get them?*

**Summary:** Wild foods: berries, nuts, grapes, greens, crabapples, wild plums, wild cherries

Meat: game, fish

Grain: corn and wheat

Vegetables: potatoes, cabbage, turnips, etc.

Meat: beef, pork, mutton, veal, and fowls

Milk, butter and eggs

How did they sweeten their food?

How did they get salt?

**References:** Aurner. *Iowa Stories*. pp. 83, 112, 113, 129  
Earle. *Home Life in Colonial Days*. pp. 131, 136, 147, 148, 158  
Sabin. *The Making of Iowa*. (Wild Food) pp. 33, 155, 163-64, 166  
Garland. *Prairie Folk*. p. 160  
Burrows. *Fifty Years in Iowa*. p. 7  
McMurray. *Type Studies from U. S.* (First series) pp. 134, 136  
Gue. *History of Iowa*, Vol. I. pp. 387, 390  
Bass. *Stories of Pioneer Life*. p. 106

Aurner. *History of Johnson County*, Vol. I. p. 3, 13, 16, 17, 19  
 Nida. *Letters of Polly the Pioneer*. pp. 17, 46, 51-2, 61, 63-65,  
 68, 69, 83

Mace. *History Reader*, Book I. p. 85

**Project:** Make rabbit trap and prairie chicken trap

**Illustrations:** Nida. *Letters of Polly the Pioneer*. pp. 36, Bear in trap

Mace. *History Reader*, Book I, pp. 85. Eel fishing

Gue. *History of Iowa*, Vol. I, p. 387. Prairie chicken, wild turkey

**Problem:** *How did the pioneers cook their food?*

Baked:

1. In a Dutch oven

2. On a board in front of the fireplace

3. In a brick oven

Fried food in skillets over the coals

Boiled food in skillets over the coals

Roasted food in hot ashes

Broiled food over the fire

**References:** Aurner. *Iowa Stories*. p. 82

Bass. *Stories of Pioneer Life*. p. 107

Nida. *Letters of Polly the Pioneer*. pp. 32, 33, 65

Mowry. *American Inventions and Inventors*. pp. 27-30

Aurner. *History of Johnson County*. p. 17

Howell. *Years of my Youth*, IX, paragraphs 6 and 7

**Illustrations:** Mowry. *American Inventions and Inventors*. p. 30

Earle. *Home Life in Colonial Days*. p. 147, cooking.

p. 55, How kettles were hung for cooking

Bass. *Stories of Pioneers*. p. 107, Kettles over fire

Nida. *Letters of Polly the Pioneer*. p. 33, Skillets and Dutch oven

Livingston. *Glimpses of Pioneer Life*. p. 120

**Projects:** Roast potatoes in hot ashes

Roast eggs in hot ashes

**Problem:** *How did they sweeten their food?*

**References:** Nida. *Letters of Polly the Pioneer*. pp. 123-127. Making maple sugar

Nida. *Letters of Polly the Pioneer*. pp. 127-131. How they got sorghum, maple sugar, and honey

Sabin. *The Making of Iowa*. p. 164, 203. Were the bee trees thought important by the pioneers?

**Project:** Tap maple trees—make maple syrup and sugar

Note how much sap it takes to make a small quantity of syrup

**Illustrations:** Nida. *Letters of Polly the Pioneer*. p. 125, Tapping the maple tree

**Problems:** *How did they make their hominy?*

*In what other way did they prepare corn for food?*

**Reference:** Aurner. *Iowa Stories*. pp. 83, 84

**Project:** Parch corn. Make hominy

**Problem:** *How did they get their flour and oatmeal?*

**References:** Bass. *Stories of Pioneer Life*. pp. 108-109

Sabin. *The Making of Iowa*. p. 156

Nida. *Letters of Polly the Pioneer*. pp. 34-37

Aurner. *History of Johnson County*

Shambaugh. *Iowa City. A Contribution to Early History of Iowa*. pp. 47-50

- Aurner. *Iowa Stories*. pp. 104-109  
 Gue. *History of Iowa*. Vol. 1, p. 298  
*Illustrations*: Aurner. *History of Johnson County*. p. 423. Coralville Mill on Iowa River  
 Bass. *Stories of Pioneer Life*. p. 108, Pounding the corn; p. 35, Hominy block; p. 36, Hand Mill; p. 37, Going to mill  
 Nida. p. 35, Hominy block; p. 36, Hand mill; p. 37; Going to mill  
 Mace. *History Reader*, Book I, p. 85, Pounding corn to meal  
 Aurner. *Iowa Stories*. p. 106, Mill stones  
 Bourne & Benton. *History of U. S.* p. 314, Grinding corn on the frontier  
 Bogart. *Economic History of the U. S.* p. 152, How grist mills were run by water  
 Edgar. *The Story of a Grain of Wheat*. p. 150, Millstones grinding  
 Gue. *History of Iowa*, Vol. I, p. 371, Mill on Iowa River  
*Project*: Bake a corn-dodger  
*Problem*: *How did they preserve food for winter use?*  
*References*: Aurner. *Iowa Stories*. pp. 84 and 85  
 Earle. *Home Life in Colonial Days*. pp. 152 and 153  
 Nida. *Letters of Polly the Pioneer*. p. 46  
*Project*: Dry apples  
*Problem*: *Where did they get their salt?*  
*References*: Nida. *Letters of Polly the Pioneer*. pp. 57, 58  
 McMurray. *Type Studies*. p. 136  
*Problems*: *How did they churn their butter?*  
*How did they keep milk and butter sweet?*  
*Reference*: Chase and Clow. *Stories of Industry*, (Old Edition), Vol. 2. pp. 104-105  
*Illustrations*: Chase and Clow. *Stories of Industry*, Vol. 2. p. 104, Pioneer dairy  
 Allen. *Industrial Studies of the U. S.* p. 228, Old-fashioned churn  
*Project*: Make a butter ladle  
 Make a dasher  
 Churn as pioneers did  
*Problem*: *How do we preserve food for future use today?*  
 Children report how their mothers prepare food for future use  
*Problem*: *How did the pioneers get their water?*  
*References*: Earle. *Home Life in Colonial Days*. p. 443  
 Aurner. *Iowa Stories*. pp. 85-87  
 Nida. *Letters of Polly the Pioneer*. p. 37, 30-31  
*Illustrations*: Nida. *Letters of Polly the Pioneer*. p. 38, Method of carrying water  
 Livingston. *Glimpses of Pioneer Life*. p. 25, Old-fashioned well  
 Keller and Bishop. *Commercial and Industrial Geography*. p. 314, Old-fashioned well  
 Earle. *Home Life in Colonial Days*. p. 444, Well-sweep  
 Carpenter. *Foods and their Uses*. p. 156, Old-fashioned bucket.

As in the case of Indian life, the writers can not enter into a justification of pioneer history. The material as presented is exceedingly interesting to the children. It is the judgment of all



concerned that the educational values resulting from the study of these problems are very great. The writers would urge, as in the case of Indian history, that, if pioneer history is to make its greatest contribution to the interpretation of modern life, it must be taught very concretely and very accurately.

The work of Grades IV, V, and VI is outlined so as to make a contribution directly to the understanding of important problems and conditions in modern life. The chief problems taken up are as follows:

Grade IV. In this and the succeeding grades the organization is around certain large phases of present-day life, the purpose being to show how the solution of the problems involved in these phases of life has been advanced. In Grade IV the work centers about the history of transportation and communication, the history of clothing, the history of telling time, and the history of the fishing industry.

Grade V. The history of agriculture, the growth of cities, the history of clay and pottery industries, the history of extractive industries, and the printing and paper industries.

Grade VI. The history of architecture, shelter, and household furnishings; the history of music; the history of medicine, and the improvement of health conditions; and the history of recreational activities.

While the topics given in these three grades represent some of the most important phases of civilization, the writers understand that the list is not a complete one. The list as it stands represents the work which has been done in the University Elementary School up to the present time. In teaching these problems the practice has been to include under each, such economic, sociological, civic, and historical data as seemed most essential to the proper understanding of the problem. A problem relating to the improvement in health conditions and in the use of medicines is given in detail to illustrate the manner in which the course of study is organized.

This "History of Medicine" represents an attempt to organize a unit in the sixth grade course of study in history, in the light of modern problems. The problems about which the outline is built have been growing in importance for many years until, to-day,



problems arising out of the safeguarding of the nation's health are receiving more attention than ever before. The amount of space in magazines and other publications devoted to health, the number of journals devoted exclusively to health work, recent legislation in regard to public health, and increased supervision of public health, all show a heightened realization of its value.

The outline is by no means a finished product. A great deal more work must be done upon it before it can be said to cover the problems adequately. In its present form, it is open to criticism on several scores. First, the reference material is difficult to obtain. Many of the magazines listed are not in the average school library, or even in many public libraries. An attempt has been made to offset this disadvantage by confining the references so far as possible to recent issues of these magazines. Second, additional reference material is needed. Lack of data necessitates developing problems from the standpoint of observation. Other problems have too few references to supply a class with sufficient material for rigorous work in a socialized recitation. Third, the outline is weak in regard to the fields of public sanitation and of preventive medicine. Fourth, the problems in the field of public sanitation have not enough historical background. Each is attacked almost entirely from the modern aspect of the problem. Fifth, too large a proportion of the outline is devoted to the history of disease. Sixth, some of the problems are such that they cannot be fully comprehended by children in Grade VI. However, these problems are interesting to the pupils, and a foundation is laid for future reading and for more thorough study in later grades.

Notwithstanding these many shortcomings, those who have worked out this outline with a class feel that a study of the problems in the "History of Medicine" does develop in the pupils certain knowledges and attitudes very much worth while.

Among the knowledges may be listed:

- (1) The relation of health to achievement. This is basic.
- (2) The progress which has been made in the prevention and control of disease and in the improvement of health conditions.

- (3) The problems which still confront us, particularly those most pressing in our own state and in our own community.
- (4) Those modern superstitions which have replaced the old-fashioned ones.
- (5) The fact that many health problems must be solved by cooperative efforts.

The most satisfactory outgrowth of the study is the attitude of personal responsibility developed in the class by presenting the problems from a social point of view. Such an attitude will make the pupil, as a future citizen, active toward health and the improvement of health conditions. He will not be among those who are indifferent to inadequate public sanitation and to bad industrial conditions, or careless as to personal hygiene and home sanitation.

Altogether, the study of the "History of Medicine" does help in accomplishing one of the vital objectives set up by all organizations working in the interests of the nation's health. It gives a knowledge of the importance of health and of measures for safeguarding the nation's health.

#### WHAT PROGRESS HAS BEEN MADE IN THE IMPROVEMENT OF HEALTH CONDITIONS AND IN THE USE OF MEDICINES?

##### A. Approach to the Problem

The most desirable approach to the study of this problem is through the discussion of some disease or health condition which is critical in the immediate community. Questions such as the following will give the pupils an opportunity to tell what they know about local conditions.

1. Have there been any contagious diseases in our town or city recently which have caused people to lose time from school or work?
  2. What was done to control these diseases?
  3. Could these diseases have been prevented?
  4. Do you know how many deaths there were in the United States last year? What is our present death rate?
  5. Can we judge of the amount of illness there is by the number of people in the hospitals?
  6. Have you read or heard a statement as to the number of men who were rejected from the army because they were physically unfit for service?
- From the discussion of these problems there should be brought out those divisions which the pupils should understand if they are to be made intelligent

and active toward public health and the improvement of health conditions. These divisions will be more effective if stated in the form of questions, but the main problem should be clearly stated and never lost sight of.

The divisions of this problem which are to be studied are:

I. What are some of the things that have made us realize the importance of understanding how our health and the health of others may be improved?

II. Along what lines has most progress been made in improving health conditions?

### B. Detailed Course

I. What are some of the things that have made us realize the importance of understanding how our health and the health of others may be improved?

1. How have the rejections from the army and navy made us realize the need for this improvement?

a. How many men were rejected?

b. What were the causes of rejection?

Ref. Statistical Abstract of the United States for 1917. p. 667  
*American Journal of Public Health*, Vol. 9; Sept. 1919. pp. 641-645. ("Are we Physically Fit?") by Rupert Blue.  
 Bulletin No. 11 of the War Department for March, 1919.  
*Scientific American Supplement*, Vol. 85, p. 105.

2. Is our death rate higher than it should be?

a. What is the annual death rate in the United States?

b. How do we get an accurate record of deaths?

(1) What is the Registration Area?

(2) What laws in regard to registration of births and deaths have been passed in our own state?

(3) What conditions must Iowa fulfill before she can become a part of the Registration Area?

c. How does our death rate for specific diseases compare with the death rate for these diseases in other countries?

d. Which diseases cause the most deaths?

(1) Which of these are preventable?

(2) Which are the most difficult to cure?

Ref. *Current Opinion*, Vol. 61; p. 401.

*Annals of the American Academy of Political Science*, Vol. 70; pp. 77-91.

Abstract of the United States Census.

United States Bureau of Census-Mortality Statistics for 1914. pp. 9-10.

Hughes. pp. 72-73.

*North American Review*, Vol. 202; pp. 181-184.

Hough & Sedgwick. pp. 558-561.

Allen. pp. 136-138.

Ritchie. *Primer of Sanitation*. pp. 180-185.

3. How much is lost in production because of illness?

Ref. *Sci. Amer. Supplement*, Vol. 82. p. 398-400.

## II. Along what lines has most progress been made?

## 1. Why is there so much less use of superstition now than formerly in treating illness?

- a. How long have people used superstition in attempts to cure themselves?
- b. What were the superstitions practised by the people of former times?
  - (1) What was the value of them?
  - (2) Why did the people believe in them so completely?

Ref. Ryan. pp. 167-168.

Walsh. *Old Time Makers*. p. 21.

Magnus. pp. 7-15, 24-88, 131-155.

Buck. pp. 10, 13, 14-16, 19-50, 51-54, 62-66.

Myers. *History of Greece*. pp. 539-540.

*Catholic World*. Vol. 105. pp. 53-61.

*Scient. Amer. Supplement*, Vol. 81. pp. 344.

Gulick. pp. 286, 290.

Davis. pp. 78-82.

Godfrey. pp. 80-81.

Rickett. pp. 195-6.

- c. What modern superstitions and beliefs in "quack" cures prevent us from having the best health conditions?

- (1) Why do we have laws which control the making and sale of patent medicines?
- (2) Do people still use fake cures?

Ref. *Scient. Amer. Supplement*: Vol. 80. p. 331.

*Lit. Digest*: Vol. 54. p. 1459; May 12, 1917.

*American City*: Vol. 13. pp. 542-543.

*Pop. Sci. Mo.*: Vol. 83. p. 81.

*Nat. Geographic Mag.*: Vol. 35. pp. 67-84.

Allen. pp. 364-377.

- d. What increased knowledge of science makes us doubt the value of superstitious practices?

- (1) What sciences have contributed most to our knowledge of medicine and health conditions?
- (2) In what period did the greatest progress in the study of these sciences take place?

Ref. *Educ. Rev.* Vol. 52. pp. 338-348

- 2. What improvements have physicians made in their methods of discovering the causes of disease and the means of cure?

- a. What have we found out to be the causes of disease?

- (1) What did the ancient people believe about the causes of disease?
- (2) How have we learned the causes of diseases?
  - (a) Who was Pasteur?
  - (b) What valuable knowledge did he give us?

- (3) Do people now believe as the ancients did about the causes?
- (4) Which diseases are caused by microbes? Which by parasites? Which by the absence of certain elements in the food?

Ref. Hough and Sedgwick: pp. 471-474

Magnus: pp. 7-8.

Buck: pp. 236-246.

Walsh: *Makers of Modern Medicine*. pp. 304-314.

*Outlines of European History*, Part II; pp. 671-673.

Ritchie: *Primer of Sanitation*. pp. 6-9.

*Public Health Nurse*, Nov. 1922 "Louis Pasteur." pp. 568-574.

Jewett. pp. 165-173.

- b. What have we learned of the control and prevention of disease?

Ref. Hough and Sedgwick. pp. 481-482, 491, 493-4, 496-7, 499.

Ritchie. pp. 9-10, 16, 158-163.

Jewett. pp. 174-191.

- 3. What are the communicable diseases about which we have learned most?

- a. How much has been done in controlling malaria and yellow fever?

- (1) To what extent have these diseases hindered the work of people?

- (2) In early times, what was thought to be the cause of these diseases?

- (3) How did we learn to control them?

- (a) What people did valuable work in studying them?

- (b) What are the most successful methods used in controlling them?

- (c) How does the death rate of the present time compare with that of fifty years ago?

Ref. U. S. Senate Documents No. 118. "Scientific Work and Discoveries of Walter Reed," by J. R. Kean.

Carroll, J. "Brief Aetiology of Yellow Fever."

Gorgas, W. C. "General Directions Regarding Destruction of Yellow Fever Mosquito."

*Outlook*: Vol. 83. pp. 834-835.

*Scribner's*: Vol. 53. pp. 234-235.

*Scient. Monthly*: Vol. 1. pp. 209-237 (2nd part).

Bulletin of the Pan-American Union: Vol. 41. pp. 366-367.

*World's Work*: Vol. 16. pp. 10432-10439.

- b. Why has the death rate from tuberculosis been lowered so much?



- (1) How does our knowledge of the cause of tuberculosis differ from the belief of former times?
- (2) When was its cause discovered?
- (3) What men have done great work in studying this disease?
- (4) What change has there been in the method used to cure it?
- (5) What provisions are made for the care of tubercular children in hospitals to-day?
- (6) What is being done to prevent tuberculosis among school children?

Ref. Clemow. p. 452.

*Outlines of European History: Part II.* p. 672.

Buck. p. 390.

Walsh. *Makers of Modern Medicine* pp. 135, 175, 192.

Otis. pp. 23-28.

Ritchie. pp. 340-341.

*Independent: Vol. 84.* pp. 404-405.

Hough and Sedgwick. pp. 483-491.

Ritchie. *Primer of Sanitation.* pp. 53-70.

Jewett. pp. 192-212.

*The Nation's Health: Nov. 15, 1922.* pp. 693-696.

"Hospital and School for Tubercular Children."

Allen. pp. 229-251.

- c. What have we learned about small pox that has helped us in controlling the disease?

- (1) How serious has the disease been in the past?
- (2) When did the medical men first learn to tell it from the other diseases?
- (3) What methods have been used in the past to cure it?
- (4) Who learned how to prevent it?
- (5) How valuable are the means of prevention?

Ref. Clemow. pp. 412-413, 426, 428, 429.

Buck. pp. 43, 142, 220, 306.

Walsh. *Old Time Makers.* pp. 119-120.

Walsh. *Makers of Modern Medicine.* pp. 89-111.

*Forum: Vol. 63.* pp. 616-619, May, 1915.

*Sci. Monthly: Vol. 1.* pp. 66-85.

*Current Lit.: Vol. 32.* pp. 484.

*Independent: Vol. 53.* pp. 227-228.

*Scient. American: Vol. 89.* p. 31.

Annual Report of the Smithsonian Institute for 1900.  
p. 341.

Hough and Sedgwick. p. 502.

- d. Why is it easy to prevent and control typhoid epidemics?

- (1) What causes typhoid fever?
- (2) What have we learned about preventing it?
- (3) When did we learn about it?

Ref. Gay. pp. 13-24.

Clemow. p. 469.

Walsh. *Makers of Modern Medicine*. pp. 188-189, 205.

*Science*: Vol. 44. p. 109.

*Science*: n.s. Vol. 47. pp. 481-482.

*North Amer. Rev.* Vol. 202. pp. 659-662.

*Nat. Geographic Mag.*: Vol. 20. pp. 743-747.

Hough and Sedgwick. pp. 491-494.

Ritchie. *Primer of Sanitation*. pp. 77-80.

Allen. p. 13.

e. Why is diphtheria less dangerous now than formerly?

(1) What treatments are used at the present time?

(2) Who discovered the present methods of treatment?

(3) How much has the death rate been reduced?

Ref. Buck. pp. 144, 405.

Clemow: pp. 131-132.

Walsh. *Makers of Modern Medicine*. pp. 328-334, 345-347.

Snyder. pp. 276.

Hough and Sedgwick. p. 503, 494-497.

*Public Health Nurse*: Nov., 1922. pp. 577-579.

"A Synopsis of Talks on Diphtheria."

f. What progress has been made in the control of communicable diseases commonly known as "Children's diseases?"

(1) What are these diseases?

(2) What has been the belief in the past about the seriousness of these diseases?

(3) How serious are these diseases?

(a) What is the annual death rate from measles?

Ref. Hough and Sedgwick. pp. 497-499.

Bulletin. *The School Child's Health*. pp. 18-42.

Ritchie. *Primer of Sanitation*. pp. 48-49.

g. Why do people have less fear of plagues and epidemics now than formerly?

(1) How serious were the plagues of former times?

(a) How many deaths were caused?

(b) Why was the death rate so high?

(c) What were the diseases of these plagues?

(d) What was the effect upon the life and conditions of the people?

Ref. Cheney. pp. 96-111.

Hecker. *Epidemics of the Middle Ages*.

Hough and Sedgwick. pp. 556-557, 470.

Defoe, Daniel. *Journal of the Plague Years*.

Wilson. pp. 135-139.

(2) What means do we have for preventing and controlling epidemics and plagues?

- (a) What is the relation of pure milk, pure water and clean surroundings to the prevention of disease?
- (b) What organizations in government help to protect your health?
  - a' Of how many members does the Board of Health in your town consist? How was it chosen? In what ways does it protect your health?
  - b' In what ways does the State Board of Health protect you?
  - c' What does the national government do to protect your health?
  - d' What international organizations are striving to protect your health?
  - e' Give examples of city ordinances and of state and national laws which are intended to protect your health?
  - f' In what ways can you cooperate with your board of health?

Ref. Dunn. pp. 59, 64-68.

Hough and Sedgwick. pp. 550-561.

Richman & Wallach. pp. 142-147, 158-172.

Ritchie. *Primer of Sanitation*. pp. 172-186.

*The American City*, Nov. 1922. pp. 398-9,

"Public Health Administration in Asbury Park, N. J."

- (3) How do we guard against epidemics in our schools?
  - (a) What is the value of daily inspection?
- (4) How can we protect ourselves against disease even though we come in contact with it?
  - (a) How can we keep the body's resistance at a high level?
  - (b) What precautions should one take in the midst of an epidemic such as the recent influenza epidemic?

Ref. Wood, Thomas. *Health Essentials for School Children*. Inside of back cover.

Bulletin 98, North Carolina Board of Health. Care of the Teeth.

Bulletin No. 6—Health Education Series of the Department of Interior; inside cover, pp. 1-2.

Bulletin No. 7—Health Education Series of Dept. of Int., inside cover.

Ritchie. *Primer of Sanitation*. p. 14.

Hough and Sedgwick. pp. 374-378.

Richman and Wallach. pp. 183-187.

Allen. pp. 62, 212-216.

4. What improvements have been made in the training of physicians and nurses?

- a. Who were the first physicians?
- b. Where were the early schools of medicine?
- c. Who were the teachers of medicine of early times?

Ref. Robinson. pp. 25, 31, 35.

Davis. pp. 77-80, 287.

Buck. pp. 17, 51-52, 70-72.

Gulick. pp. 287-8.

Godfrey. pp. 92-98.

Wilson. pp. 229-232.

d. What kind of training do we insist upon at the present time?

- (1) What are the different schools of medicine or healing?
- (2) How are the hospitals used in the training of our physicians and nurses?

e. How much have the hospitals helped in treating disease?

- (1) What were the hospitals of ancient times like?

(a) How were they arranged?

(b) How much were they used?

(c) What patients were treated there?

Ref. Walsh. *Old Time Makers*: pp. 23-28, 296-298.

- (2) What are the provisions for hospitals in our own community?

(a) Who controls or manages them?

(b) What people receive treatment at them?

- (3) How do the hospitals of modern times compare in arrangement and usefulness with those of ancient times? With those of former times in our own country?

Ref. Jewett: 245-252.

5. What have been the improvements in the methods, materials and equipment which the physicians use?

a. Why are operations less dreaded now than formerly?

- (1) How long have anaesthetics been used in surgery?

(a) What drugs are commonly used now for anaesthetics?

(b) How long has it been since they were first used?

(c) Who helped greatly in putting them into use?

(d) Did the people in ancient times use any medicine to deaden pain in operations?

Ref. Buck. pp. 253, 462.

Walsh. *Old Time Makers*. pp. 246, 295-296.

Robinson. pp. 237-246.

*Outlines of European History*. Part II. pp. 670-671.

Godfrey. p. 92.

- (2) Why do we pay so much attention to keeping wounds clean?

- (a) How do we keep wounds clean?
- (b) When did we first learn that wounds needed to be kept clean?
- (c) What were the old methods of cleansing wounds?
- (d) Of what importance has the discovery and use of antiseptics been?

Ref. *Outlines of European History*. Part II. pp. 672.

Walsh. *Old Time Makers*. pp. 17-18, 246-247.

- (3) What progress has been made in the practice of surgery?

- (a) Who performed the operations in early times?
- (b) Was it possible in early times to get special training in surgery?
- (c) What is the value of Harvey's discovery?
- (d) How do men at the present time prepare themselves for surgical work?
- (e) What tools did the ancients have?
- (f) Why are more tools used now?

Ref. Buck. pp. 8, 300, 306, 447, 448, 516, 423.

*Outlines of European History*. Part II. p. 672.

Robinson. pp. 97-118.

- b. Why do we insist upon a careful study of medicines and their uses?

- (1) What drugs were commonly used in former times?
- (2) What medicines were used by the pioneers of our own country?
- (3) What changes have there been in the ways of preparing medicines?
- (4) What training is given at present in preparing medicines?

Ref. *Scient. Amer. Supplement*: Vol. 81. pp. 391.

Gulick. 287.

6. To what extent has the attention paid to sanitation, improved health conditions?

- a. What has been done to improve conditions in factories?

Ref. Hughes. pp. 311-314.

O'Shea and Kellogg. pp. 259-267.

*Nation's Health*, Nov. 15, 1922. pp. 681.—“Clean Windows an Economy.”

Allen. pp. 218-228.

- b. What improvements have been made in home sanitation?

- (1) What improvements in construction of houses have been made in the interests of health?



- (2) What improvements have been made in the handling of wastes?
  - (a) How were wastes disposed of in ancient times?
  - (b) How are inorganic wastes such as tin cans, ashes, etc., disposed of?
  - (c) How are garbage and other organic wastes disposed of?
- (3) How have methods of keeping food pure and of preserving food been improved?
- (4) What improvements have been made in sanitation of rural homes?

Ref. O'Shea and Kellogg. pp. 47-55, 102-107, 111-122, 182-184, 65-74, 78-91, 228-231.

Hough and Sedgwick. pp. 455-466.

Ritchie. *Primer of Sanitation*. pp. 188-192.

Jewett. pp. 253-256.

Bulletins: A Sanitary Closet Suitable for Rural Districts.

Public Health Bulletin No. 70.

Public Health Bulletin No. 11.

Methods of Sanitary Disposal without Sewers.

c. What have cities done to improve sanitary conditions?

- (1) What has been done to improve housing conditions?
  - (a) How were the poor housed in the cities of the middle ages?
- (2) What improvements have been made in keeping streets clean?
- (3) What provisions for the inspection of food and of places which handle food, have been made?

Ref. Hall. pp. 256-257.

O'Shea and Kellogg. pp. 14-23, 216-228.

Richman and Wallach. pp. 174-177.

Jewett. pp. 9-22, 30-44.

Gulick. pp. 15-16.

Davis. pp. 12-13.

- (4) What improvements have been made in the disposition of wastes?
  - (a) How were wastes disposed of in former times?
  - (b) What are the most important modern methods of disposing of garbage, sewage, and other organic wastes? Ashes, tin cans, and other inorganic wastes?

Ref. O'Shea and Kellogg. pp. 113-114.

Jewett. pp. 45-57, 129-132.

*American City*. Nov. 1922. pp. 395-6. "Erie has Municipal Piggery."

*Municipal and County Engineering*. Nov. 1922. pp. 165-171. "Successful Operation of Direct Oxida-

tion Process of Sewage-Treatment at Allentown, Pa." pp. 192-197. "Troubles Experienced in Modern Methods of Garbage Disposal." *Municipal and County Engineering*. Oct. 1922. pp. 120-122. "Notes on Two New Sewage Treatment Processes." pp. 148-158, "Recent Developments in Sewage Treatment." Gulick. pp. 17-18.

(5) What improvements in methods of securing pure water have been made?

- (a) What provision for a water supply was made by the Romans?
- (b) By the cities of the middle ages?
- (c) By cities in our country before we learned the importance of a pure water supply?
- (d) When did we begin to pay serious attention to a pure water supply?
- (e) How do some of our large cities secure a pure water supply?
- (f) What methods are used in your own city?

Ref. O'Shea and Kellogg. pp. 175-187.

Jewett. pp. 81-132.

Dunn. pp. 60-62.

Ritchie. *Primer of Sanitation*. pp. 86-89.

*Municipal and County Engineering*, Oct. 1922. pp. 127-130. "Modern Water Filtration Plant

Built at Ashland, Kentucky." pp. 140-143.

"Pollution of Water Supply Sources."

Gulick. p. 18.

Johnson. p. 145.

Allen. pp. 190-200.

(6) What progress has been made in securing a pure milk supply?

- (a) What have we learned about the dangers from impure milk? How many of the babies of the United States are fed on cows' milk?
- (b) When did people first begin to realize the need for clean milk?
- (c) What have we learned about means of keeping milk pure?

Why should a cow be well cared for and given a tuberculin test?

How should milk be handled in order to keep it clean?

What is "certified" milk?

What is "Pasteurized" milk?

(d) What progress has been made in securing inspection of milk? What is the state law in regard to filled milk?

(e) What has been done in our city to insure clean milk? Do we have any city ordinances in relation to milk? Should we have inspection of milk?

Ref. O'Shea and Kellogg. pp. 191-212.

Jewett. pp. 149-164.

Ritchie. *Primer of Sanitation*. pp. 153-157.

Allen. pp. 252-267, 25-29.

d. What measures of sanitation have been undertaken to protect the travelling public?

Ref. Hughes and Sedgwick. pp. 544-548.

*The Nation's Health*, Nov. 15, 1916. pp. 645-647,

"Hygienic Measures of the Southern Pacific?"

7. What means of preventing disease have been developed?

a. What is being done to prevent disease and loss of time among workers?

(1) What is the relation between occupation and disease?

(2) What is the value of physical examinations?

(3) By what means are workers protected against accidents.

(4) What methods are being used to lessen the amount of eyestrain?

(5) What provision is made for the recreation of employees?

(6) What progress in proper vocational placement is being made?

(7) Why has the length of the laboring day been regulated?

Ref. Hough and Sedgwick. pp. 474-475.

*The Nation's Health*, Nov. 15, 1922. pp. 668-9. "The

Care of Tuberculosis in Industry." pp. 663-

"Great Britain's Place in Fatigue Elimination." p. 679,

"Industrial Ophthalmology." p. 680- "The Functions of Medicine in Industry."

b. To what extent have hospitals for the prevention of disease been developed?

c. What are medical men doing to prevent disease?

d. How is the public health movement preventing disease?

e. To what extent may we secure immunity from disease by vaccination, inoculation, care of the teeth, etc.

Ref. *The Nation's Health*, Nov. 15, 1922. pp. 656-8, "Prevention of Simple Goiter in Man." pp. 666-7, "The Upbuilding of the Public Health Profession." *Amer. Jour. of Public Health*, Nov. 1922. "Should the Social Service Departments in Children's Hospitals be Developed into Departments for the Prevention of Disease?"

Allen. pp. 201-207, 268-282.

- f. What is being done in our schools to prevent disease and to secure better health among school children?

- (1) In what ways has the school plant been made more sanitary and attractive?
- (2) What are the particular problems of rural schools?
  - (a) How does the physical condition of rural school children compare with that of city children?
- (3) To what extent is medical inspection and follow-up work preventing disease among school children?
  - (a) What are some of the outstanding health defects among children?
  - (b) What is being done to detect and remedy these?
- (4) What is the value of wholesome play and recreation?
- (5) What is the value of the hot lunch?

Ref. Wood, Thomas D. *Minimum Health Requirements for Schools*.

Wood, Thomas D. *Health Essentials for Rural School Children*. pp. 1-7.

Bulletin: Recreation and Rural Health.

Bulletin: Health Education. No. 7. pp. 8-9.

Bulletin: Hunt, C. W. School Lunches. pp. 1-3, 10-11.

Bulletin: Public Health, No. 116. Country School and Rural Sanitation.

*The Nation's Health*, Nov. 15, 1922. pp. 649-650.

"Detroit's School Health Plan." pp. 697-700.

"Greater Efficiency in Health Work in Schools." Bulletin No. 11; Extension Division, State University of Iowa.

Ayres, Williams, and Thomas. pp. 1-30, 65-76, 81-104, 209-211.

Richman and Wallach. pp. 148-157.

Allen. pp. 33-44, 139-183, 283-301.

- g. Why have we been giving so much attention to caring for the health and preventing the ailments of little children?

- a. To what extent have we lowered the death rate among babies?

At what age is the death rate highest?

At what time of the year?

- b. What can we do to lower this death rate?

- c. What are the agencies in our state for caring for little children needing medical care?

- d. What national agencies are working in the interests of children's health?

Ref. Mangold. pp. 52, 53.

Hough and Sedgwick. p. 499.

Ritchie. *Primer of Sanitation*. pp. 154-155.

Allen. pp. 24-25.

- h. What means, other than hospitals, doctors, and sanitary measures, have been provided to care for the health of the people?

- a. Why have parks and playgrounds been established in cities?

Ref. Dunn. p. 64.

Jewett. pp. 58-67.

O'Shea and Kellogg. p. 24.

Hough and Sedgwick. p. 549.

*Nation's Health*. Nov. 15, 1922. p. 201. St. Louis Recreation Program.

- b. Why do we demand good fire and police protection?

- c. Why are we insisting upon such strict observance of the quarantine law?

- d. How are we preventing accidents?

10. What has been learned of the care of the teeth?

- a. How did the ancient and medieval people care for their teeth?

- b. Who did the dental work in former times?

- c. Why do we insist upon such careful attention to the teeth?

- d. What are our means at present for caring for the teeth?

Ref. Walsh. *Old Time Makers*. pp. 31-32, 313-335.

Allen. pp. 89-106.

Godfrey. p. 92.

Ryan. p. 168.

### III. Summary.

1. What was the particular work of the following men?

Review the work of Pasteur, Koch, Jenner, Lister, Hunter, Harvey, Simpson. Point out clearly that the work has been done in rather recent times.

2. What are the diseases and conditions about which we know least?

3. What conditions most need further study?

4. What conditions have already been widely studied?

5. Why has the period of important discoveries and inventions been so recent?

6. Why has so little use been made of such information as the ancient people had learned?

7. What should be the attitude of every one toward public health?

### BIBLIOGRAPHY

#### BOOKS

*Abstract of the Census*—United States Bureau of the Census, 1914.

Allen, W. H. *Civics and Health*. Ginn, 1909.

*Annual Report of the Smithsonian Institution for 1900*.

Ayres, Mary; Williams, J. F.; Wood, Thomas. *Healthful Schools—How to Build, Equip, and Maintain Them*. Houghton Mifflin, 1918.

Buck, A. H. *Growth of Medicine from the Earliest Times to 1800 A. D.* Yale University Press, 1917.



- Carroll, J. *Brief Aetiology of Yellow Fever*.
- Cheney. *An Introduction to the Social and Industrial History of England*.
- Clemow, F. G. *Geography of Disease*. Cambridge Geographical Series, University Press, 1903.
- Davis, M. S. *A Day in Old Athens*. Allyn and Bacon, 1914.
- Dunn, A. W. *Community and the Citizen*. D. C. Heath, 1914.
- Gay, F. P. *Typhoid Fever Considered as a Problem of Scientific Medicine*. Macmillan, 1918.
- Godfrey, Elizabeth. *Social Life Under the Stuarts*. Grant Richards, London, 1904.
- Gorgas, W. C. *General Directions Regarding the Destruction of the Yellow Fever Mosquito*. Washington, Government Printing office, 1904.
- Gulick, C. P. *The Life of the Ancient Greeks*. D. Appleton, 1902.
- Hall, Jessie. *Our Ancestors in Europe*. Silver, Burdett & Co., 1916.
- Hawes, J. B. *Consumption; What it is; What to do about it*. Small & Maynard, Boston, 1915.
- Hecker, F. *Epidemics in the Middle Ages*. Trubner, London, 1859, Ed. 3.
- Hough, Theodore and Sedgwick, W. T. *Elements of Physiology*. Ginn, 1907.
- Hughes, R. O. *Community Civics*. Allyn and Bacon, 1917.
- Jewett, Frances Gulick. *Town and City*. Ginn, 1906.
- Johnson, H. W. *Private Life of the Romans*. Scott Foresman & Co., 1903.
- Magnus, Hugo. *Superstition in Medicine*. Funk and Wagnalls, 1908.
- Marigold, G. B. *Problems of Child Welfare*. Macmillan, 1914.
- Myers, P. V. *History of Greece*. Ginn, 1895.
- Nida, W. L. *City, State, and Nation*. Macmillan, 1916.
- O'Shea, M. V. and Kellogg, J. H. *Health and Cleanliness*. Macmillan, 1921.
- Otis, E. O. *The Great White Plague*. Crowell & Co., 1909.
- Rickett, A. C. *The London Life of Yesterday*. Constable & Company, London, 1909.
- Richman, Julia and Wallach, Isabel Richman. *Good Citizenship*. American, 1908.
- Ritchie, J. W. *Human Physiology*. World Book Co., 1919.
- Ritchie, J. W. *Primer of Sanitation*. World Book Co., 1920.
- Robinson, J. G.; Breasted, J. H. *Outlines of European History*, Parts I & II, 1914.
- Robinson, Victor. *Pathfinders in Medicine*. Medical Review of Reviews, New York, 1912.
- Ryan, P. F. W. *Stuart Life and Manners*. Methuen & Co., London, 1912.
- Snyder, Carl. *New Conceptions in Science*. Harper, 1903.
- Statistical Abstract of the United States for 1917*. U. S. Dept. of Commerce, Bureau of Foreign & Domestic Commerce.
- United States Bureau of the Census—Mortality Statistics for 1914*.
- United States Senate Document*, No. 118.
- Walsh, J. J. *Makers of Modern Medicine*. Fordham University Press, 1915.

- Walsh, J. J. *Old Time Makers of Medicine*. Fordham University Press, 1911.  
 Wilson, J. D. *Life in Shakespeare's England*. Cambridge University Press, 1911.

## PERIODICALS

- American City*, Vol. 13. November, 1922.  
*American Journal of Public Health*, Vol. 9. November, December, 1922.  
*Annals of the American Academy of Political Science*, Vol. 70.  
*Bulletin of the Pan-American Union*, Vol. 41.  
*Catholic World*, Vol. 106.  
*Current Literature*, Vol. 32.  
*Current Opinion*, Vol. 61.  
*Educational Review*, Vol. 52.  
*Forum*, Vol. 53.  
*Hospital Social Service*. December, 1922.  
*Independent*, Vol. 53, 84.  
*Municipal and County Engineering*, October, November, 1922.  
*National Geographic Magazine*, Vol. 20, 35.  
*The Nation's Health*. November, 1922.

## BULLETINS

- Wood, Thomas D. *Minimum Health Essentials for Rural Schools*. Press of American Med. Assoc.  
 Wood, Thomas D. *Health Essentials for Rural School Children*.  
*Recreation and Rural Health*. Bureau of Ed. Dept. of Interior.  
 Fisher, Katharine A. *Lunch Hour at School*. Health Education. No. 7, Dept. of Interior.  
 Hunt, Caroline L. *School Lunches*. Farmers' Bulletin, No. 712. U. S. Dept. of Agriculture.  
*The School Child's Health*. Am. School Hygiene Assoc.  
*A Sanitary Closet Suitable for Rural Districts and How it Should be Built*. Texas State Board of Health.  
*Country School and Rural Sanitation*. Public Health Bul. No. 116, U. S. Public Health Service.  
*Good Water for Farm Homes*. Public Health Bul. No. 70. U. S. Public Health Service.  
*Methods of Sanitary Disposal of Sewage without Sewers*. Indiana State Board of Health, Indianapolis.  
 King, Irving. *Hygienic Conditions in Iowa Schools*. Bulletin No. 11. Extension Division, University of Iowa.  
*Health Training for Teachers*. Health Education No. 8. Dept. of Interior.  
*Steps in Teaching Health*. Health Education No. 4. Dept. of Interior.  
*Further Steps in Teaching Health*. Health Education No. 6, Dept. of Interior.  
 Bulletin No. 11 of the War Department for March, 1919.

All the teachers who have participated in the experiments in these intermediate grades agree that the work is most interesting to themselves and to the pupils. They agree also that these problems can be kept within the understanding of the students of intermediate grades more easily than can the problems presented in the ordinary course of study for these grades. The subject matter presented affords an excellent preparation for the systematic and chronological treatment of history as it is begun in Grade VII.

There are, of course, many difficulties. The greatest of these arises out of the fact that few treatments of the problems are simple and concrete enough for use in these grades. It has required a great amount of labor to get together pictures and descriptions which were at all satisfactory. It is not always easy to get reliable information on a problem even for use by the teachers.

It is the judgment of the writers that no such plan should be attempted in the public schools until adequate books are available. Beginnings can be made, in an experimental way, as fast as proper reference material can be obtained. Good books can now be obtained for a few of the problems. Such a book is Sanford's *The Story of Agriculture in the United States*, published by D. C. Heath. The excellent pamphlets published by Dr. Harold Rugg illustrate the possibilities in producing this kind of material. It has been the experience of the writers, however, that even with such treatments as those in Sanford and in the bulletin produced by Dr. Rugg, the highest type of interest can be kept only where supplementary references are used.

## CHAPTER XI

### A PROPOSED SOCIAL SCIENCE COURSE FOR THE JUNIOR HIGH SCHOOL

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HAROLD RUGG, EARLE RUGG, AND EMMA SCHWEPPE  
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In Chapter I needed changes in the content and organization of social science courses were pointed out. In the Lincoln School of Teachers College a new experimental course has been constructed in the attempt to provide these needed changes. In this chapter a brief outline is given of the entire course, together with a sample of the reading materials and the kinds of activities in which the pupils participate. The method by which the course is being constructed is described in Chapter XV. Many of the reasons for the changes which are illustrated in the sample materials are given in the last part of Chapter I. Since no restatement of these is given here, we suggest that the reader turn back to that discussion in case queries arise in studying the sample materials.

#### THE NEED FOR EXPERIMENTAL COURSES

After ten years of activity in reorganizing the junior-high-school courses, it is perfectly apparent that the most immediate need is for curriculum materials properly adapted to these grades. Although new histories, geographies, and community civics books are coming from the press month by month, they do not represent the kind of reorganization demanded by the protagonist of the new order. Those materials are merely "old wine in new bottles." Their covers and titles and section headings are new, but not the detailed materials and activities. Our group therefore decided to construct first of all a curriculum specifically for the junior-high-school grades. Our purpose is ultimately to prepare a complete scheme of materials and activities from the primary school through the senior high school. Hence this junior-high-school course not only serves the purpose of supplying illustrative material for the sev-

enth, eighth, and ninth grades, but it also provides the curriculum-maker with valuable data for the selection and arrangement of the courses below and above the intermediate school. From all stand-points these grades form a strategic level at which to make the first attack on the problem of curriculum reorganization.

#### GENERAL NATURE OF THE PROPOSED COURSE IN THE SOCIAL SCIENCES

The course we have prepared is frankly tentative and experimental. The basic materials from which it was made have been taught in mimeographed form in three grades of the Lincoln School of Teachers College during the past two and one-half years. It was clear that further progress depended on experimenting with a printed course which should be used in typical public schools. Accordingly, although our scientific studies have not been completed, and cannot be for two years more, a tentative edition of a three-years' course has been printed. This is being taught under our direction in 110 school systems; some of the schools use the material in only one of the three grades, seven, eight, and nine; some in two, and some in all three grades.

The course appears as a series of pamphlets<sup>1</sup> so constructed that each pamphlet deals with one group of contemporary problems.

A general outline of the three-year scheme can be economically given by enumerating the titles of the pamphlets and some of the major topics discussed.

The first two for each year, six in all, which are now being used in the schools, are as follows:

- Seventh Grade—Pamphlet No. 1. *America and Her Immigrants*—Who They Are, Where They Come From, Why They Come, Why They Came in the Past, How They Are Received, What They Do Here, How They Become Americans.
- Seventh Grade—Pamphlet No. 2. *The City and Key Industries in Modern Nations*—Cities: How and Why They Grew; Transportation and City Life; Coal, A Crucial Industry; Ties between Farm and City; Resources and Industries of

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<sup>1</sup>*The Social Science Pamphlets: Essentials in Geography, History, and Civics.* Published privately by the authors and sold at a cost price to co-operating schools. These pamphlets are not for general commercial distribution at the present time.



America; Interdependence of Nations; Industrial and Agricultural Countries; Empires, Colonies, Ships, Resources.

Eighth Grade—Pamphlet No. 1. *The Westward Movement and the Growth of Transportation*—The Red Man's Continent; Why the Colonists Came; Life on the Different Frontiers; Across the Appalachian Barrier; The California Gold Rush; Natives and Immigrants as Pioneers; From Pack Horse to Pullman Car, From Flat Boat to Steamship.

Eighth Grade—Pamphlet No. 2. *The Mechanical Conquest of America*—Industrial Revolution in England; Hand-work to Machinery in America; Industry and Protective Tariffs; A Century of Invention; The Drift from Farm to City; Wages, Hours, Conditions of Work; Changes in Agricultural America, Seventy Years of Big Business.

Ninth Grade—Pamphlet No. 1. *Americanizing our Foreign-Born*—The Invasion of America; Colonization in Cities; The Immigrant at Work; The Immigrant at School, How He Becomes Naturalized, How He Affects American Life, How We Can Make Him a Good American Citizen.

Ninth Grade—Pamphlet No. 2. *Resources and Industries in a Machine World*—Can a Nation Live by Itself? Can the United States? England? Russia? China? France? Germany? The Smaller Nations? Growth of Cities—Industrial Revolution, Interdependence of City and Country, Transportation—the Key Industry, How One Worker Depends on Another, From Home to Factory, Concentration in Industry and Business.

#### HYPOTHESES UPON WHICH THE PROPOSED COURSE IS CONSTRUCTED

The proposed course is based upon certain important hypotheses. The reader should have these in mind in studying the sample materials.

*First: Current modes of living, contemporary problems and their historical backgrounds can be learned more effectively through one unified social science curriculum than through the separate school subjects, history, geography, civics, and economics.* A general course brings to the teacher easily and at the time they are needed, all of the necessary materials, irrespective of how they have been catalogued in the past.

Let us make no mistake about this proposal, however. *It is not an attempt to merge the established subjects.* Rather than that,

the procedure we have employed starts with no interest in the established order. It completely disregards current courses. Only one criterion is employed in selecting the content of the course: its contribution to present living. The point should be made emphatically, therefore, that our procedure represents a scheme of curriculum-making which has no part in the movement to merge all of the content of the present school subjects.

*Second: Each major topic of the course must be of established social value to the rank and file of our people.* Unless a topic can be proved to contribute definitely to an understanding of current modes of living and problems and issues of contemporary life, it can find no place in such a course. Hence much of the content of present school courses is not found in this proposed curriculum. On the other hand, a wealth of new material is included with which children hitherto have not been permitted to deal.

*Third: An objective analysis of social needs facilitates the assignment to each of the major phases of life, its proper amount of attention in the curriculum; the traditional method of opinion cannot do so except by chance.* Just what the permanent problems and issues of our generation are is being determined by analytical methods. If the analysis is sound, then the question of distribution of time to social, industrial, and political matters can be experimented upon in the schools. Eventually we shall have a curriculum in which the basis of emphasis will be objective investigation and experimentation instead of prejudice and tradition as it is at present.

*Fourth: Each topic and sub-topic of the course shall be illustrated by detailed episodes and by a wealth of maps, graphs, and pictorial material far in excess of the present use of them.* Sufficient reading material can probably be best provided by two methods, the long story and the short episode. Into the long story can be woven a rich treatment of all aspects of a broad group of topics—for example, our 27 page story of "How Carlo and His Family Came to America" in our pamphlet (VII-1) "America and Her Immigrants." The *episode*, that is, the anecdote, the story of some actual human happening, is employed to illustrate a particular matter. For the succession of brief and abstract state-

ments of *fact* in our present books is to be substituted the wide use of meaningful *episodes*. This is one of the contributions of our materials on which we should like special consideration and discussion.

In any selection of a few pages from the Pamphlets it is impossible to demonstrate completely our use of the episode. In this *Yearbook*, however, we must rely on such a sample. It is, of course, impossible to provide an illustration of the use of the long story.

The sample pages illustrate the way maps and graphs are closely correlated with the context. This is done (a) through questions directly referring the pupil to the figures and so guiding his reading of them; (b) through questions which lead him to think with the facts these figures furnish; and (c) by so arranging the narrative that references to the figures and use of them is made as the pupil reads. To show growth and change in industrial tools or ways of travel, etc., a series of pictures with detailed captions are often provided which tell a quick moving story. Our use of this is not illustrated in the sample pages.

*Fifth: The reading materials and the exercises should be set so as to stimulate analysis and reasoning.* Some of the devices in the organization of curriculum materials which provide practice in thinking are the constant use of questions, and their close relation to facts which are needed for their answer; the handling of facts; the solving of set problems; the arousal of the critical attitude; the analysis of episode and graphic material to determine principal points; the drawing of generalizations and conclusions; the making of summaries. These devices are all illustrated in some fashion or other in the sample pages.

*Sixth: Only that historical background of a particular problem, institution or activity shall be taught which is necessary to an adequate understanding of the problem; probably the most effective way to teach is by a series of sharp contrasts.* History is to "move rapidly" in these grades. Only a part of the story is to be told the first time over, more being added in successive years of the course. One era, one condition, one stage of a movement is to be sharply contrasted with another and especially with the current order of things.

*Seventh: Historical backgrounds will be clearer if the history of only one set of related topics is traced at one time.* This amounts to saying that in the junior high school we should teach history longitudinally instead of by periods, or transversely. That is to say, we should trace directly to the present day, the development of a particular activity or group of activities. For example, Pamphlet No. 1 of the Eighth-Grade Series sketches the entire westward movement and the growth of transportation, giving special attention to the last 125 years. This requires about 10 school weeks. Pamphlet No. 2 takes another 10 weeks to sketch the industrial and business history of America, weaving the chief strands of the westward movement and the growth of transportation into the warp of the story thus far accumulated. Pamphlet No. 3 traces the cultural history to the present day, showing what the American people were doing with their leisure time while they were conquering the natural resources of a continent. It, too, gathers up the outstanding threads of the first two pamphlets as it goes along, by constant back reference and recall.

Pamphlet No. 4 does the same thing for the study of municipal and national government in the great American experiment in democracy, and Pamphlet No. 5 repeats the procedure for the development of America's relations with other countries.

The immediate reaction of the vigorous protagonist of things as they are is that this leads to learning historical movements in isolation—that it is “compartment learning” and that children will not get a feeling for the total life of our people at any one time. This is indeed a point of issue. We believe we meet this objection adequately and *in accordance with the manner in which pupils learn most naturally* by our method of weaving into any discussion the important facts and relationships taken up earlier which should be present in the pupil's mind at that time.

Neither we nor exponents of the present “block” method have any evidence as to which is the better. *What we propose to do is to collect evidence*, regarding our own procedure in the meantime as entirely experimental. In the light of present psychological thought, however, our method has strong claim to careful consideration. This hypothesis is closely bound up with the next one.



*Eighth: One problem or topic, or at most one restricted group of problems and topics, should be considered definitely and thoroughly at one time.* Present materials are diffuse. They take up a little of everything and handle no one matter thoroughly. Our sample unit partially illustrates the method of considering, from different angles, one matter at a time. Perhaps the best illustration of the present point of issue is supplied by Pamphlet No. 2 of the Eighth-Grade Series, "The Mechanical Conquest of America."

#### HOW SHALL SUCH MATERIALS BE USED TO PROVIDE SUFFICIENT PUPIL-ACTIVITY?

The last and, we believe, the most important problem before us deals with a matter that cannot be illustrated clearly in the reading materials. At the present time we are attempting to design a method of using the materials in the classroom through which the pupils will take the initiative and assume responsibility for learning. By this method at least half of the time will be devoted to individual work. In other words, we are trying to devise a combined individual-group method of using the new materials which will keep the general direction of the work week by week in the hands of the teacher, but in which a large share of the leadership and responsibility of the class hour will fall upon the pupils. Reports of these experiments will be made from time to time in educational articles and monographs.

#### A SAMPLE UNIT OF MATERIAL

In considering this illustrative material, then, bear in mind the foregoing statements of our hypotheses. This sample unit appears in the second Eighth-Grade pamphlet, as pages 148-161, and 167-171. It has been preceded in that pamphlet by the following materials: I. "A Brief View of Important Changes in Industry" (pages 1-14); II. "The English Industrial Revolution, 1700-1922" (pages 15-38); III. "How the American Industrial Revolution Began, 1790-1820" (pages 39-57); IV. "How Congress Has Helped Our Manufacturers: the Protective Tariff" (pages 58-70); V. "The Nineteenth Century: The Great Age of Invention"



(pages 71-98); VI. "Inventions that Helped to Bind Our People Together" (pages 99-137); VII. "There Was a Revolution in Power, Too" (pages 138-148).

VIII. "CHANGES I THINK MUST SURELY HAVE OCCURRED  
AFTER 1830"

(Do not read ahead before you do this exercise)

I

Try to imagine yourself living in the Eastern United States, say, in 1830. Recall what part of the country our people were living in at that time, how few cities there were, and in general about where they were. Recall to what extent factories had come into existence. Picture to yourself how men farmed then, the kinds of implements they used, and what their daily lives consisted of. Remember the time is 1830. Think about how people traveled from place to place in those days; how they communicated with each other; how long it took to send messages; where they got their food; how much of it they raised themselves; to what extent they made their own clothes. Imagine how the streets and stores of the cities must have looked and the kinds of things you could buy in the stores; how the streets were paved and lighted, and the vehicles that were used. Try to get a clear picture of the life of the people of that time.

II

Now think back over the stories of the Industrial Revolution, especially of the revolutionary inventions made in America after 1830. Turn back and skim rapidly through these accounts if you wish, provided you take only a few minutes.

DO NOT READ AHEAD, however, for we wish this exercise to be a real game for you.

III

YOUR PROBLEM

Now, having in mind the way people lived in 1830, the inventions that came after that time, and the westward movement by which our people settled the land of the United States, try to figure out the important changes that must surely have come after 1830 in the lives of the people. Write these out in a series of sentences. State an important change you think would be bound to come in the way people provided themselves with food, shelter, and clothing; in the way they spent their time; how the distribution of population on the land must have changed, etc. Set down any important changes you can think of that would necessarily have come after 1830.

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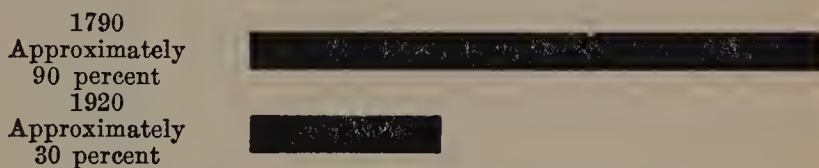
After you have finished writing your sentences, skim over the next 10 or 15 pages and see if you have covered the important changes.

## IX. THE INDUSTRIAL REVOLUTION CHANGED THE LIVES OF THE PEOPLE

### PEOPLE MASSED TOGETHER IN CITIES

The century from 1820 to 1920 witnessed the most spectacular change in the manner of living of a great people that the world has ever known. In 1790, to go back a little, 90 percent of the American people were engaged in farming. That is, nine out of every ten men, women, and children lived on farms. Most of them lived on their own farms; few families were renters in those days, for land was to be had for settling upon it. The story of the restless westward trek of our people is already familiar to you.

By 1920, however, only 30 percent of our people were engaged in farming. This means that at least 60 percent of a rapidly growing population had been by some "hocus-pocus" released from farm work and were engaged in "city" occupations. Fig. 28 makes the contrast clear. How could such a



Approximate Percentage of Total Population Engaged in Agriculture, 1790 and 1920

Fig. 28

change have come about? The population graph of Fig. 29 shows less than 4 million people here in 1790, and 105 million in 1920—a gain of 101 million. Yet in 1920, 30 million people, roughly, were raising enough food to supply themselves and 70 million others, while in 1790 nine out of every ten persons were engaged in raising food.



Population in the United States in 1790 and 1920

Fig. 29

How did such changes come about? What were the causes?

Review at this point the maps of the Westward Movement (Pamphlet No. 1, Fig. 10, pages 60-61). Note that by 1820 the frontier was already pushed beyond the confines of the Ohio Valley; the Mississippi River had been crossed in some places. But remember that the frontier divided off the land where there were only two persons living to the square mile. At the present time in modern countries people are living very much closer together. In England, for instance, there is an average of 400 people to the square

mile. But even in 1820 there were medium-sized cities: Boston had 43,000; New York had 123,000; Philadelphia 112,000; Baltimore 62,000. Charleston, S. C., with its 24,000, and New Orleans, with its 27,000, were typical of the slower growth of cities in the South. Notice, however, how the population kept growing denser behind the frontier, and the cities filled in. By 1850 New York was over 500,000; Boston 136,000; Philadelphia 340,000; other smaller cities had sprung up all over the Ohio and Mississippi valleys.

By 1890 the settlements had moved clear across the continent, the frontier had entirely disappeared, and cities were taking the leadership as far west as Illinois, Indiana, and Michigan.

Do you think the cities of 75 to 100 years ago were like ours of to-day? Would you have seen fine clusters of lights shining over smooth macadam boulevards in 1830 in New York, or in 1845 in Chicago, or in 1856 or 1860 in Minneapolis? Would you have climbed 20 or 40-story skyscrapers in electric elevators, or whizzed easily about in fine gasoline cars? Read these accounts of eye-witnesses of cities in those earlier times. The first story pictures Chicago when it was a muddy little town of 4000 people (about 1840).

"Chicago looked very bare on the high prairie above the lake. It was Mr. William Cullen Bryant who said that it had the look of a huckster in his shirt-sleeves.

" 'There it is,' said Samson. 'Four thousand, one hundred and eighty people live there. It looks like a sturdy two-year-old.'

"The houses were small and cheaply built and of many colors. Some were unpainted. Near the prairie they stood like people on the outer edge of a crowd, looking over one another's shoulders and pushing in a disordered mass toward the center of interest. Some seemed to have straggled away as if they had given up trying to see or hear. So to one nearing it the town had a helter-skelter look.

"Our travelers passed rough boarded houses with grand-looking people in their dooryards and on their small porches—men in broadcloth and tall hats and ladies in silk dresses. It was six o'clock and the men had come home to supper. As the horsemen proceeded, larger buildings surrounded them, mostly two stories high. There were some stores and houses built of red brick. Beyond the scatter of cheap, wooden structures they came to streets well laid out and crowded and busy and 'very soft,' to quote a phrase from the diary. Teams were struggling in the mud, drivers shouting and lashing. Agents for hotels and boarding-houses began to solicit the two horsemen from the plank sidewalks. The latter were deeply impressed by a negro in scarlet clothes, riding a horse in scarlet housings. He carried a scarlet banner and was advertising in a loud voice the hour and place of a great land sale that evening.

"A sound of many hammers beating upon boards could be heard above the noises of the street and behind all was the constant droning of a big steam saw and the whirl of the heavy stones in the new grist mill. It was

the beginning of that amazing diapason of industry which accompanied the building of the cities of the West.”<sup>2</sup>

By 1847 Chicago had grown to a city of 10,000, but its appearance was much the same.

“Of all the cities that Cyrus McCormick had seen in his 3,000-mile journey, Chicago was unquestionably the youngest, the ugliest, and the most forlorn. It lacked the comforts of ordinary life, and many of the necessities. For the most part, it was the residuum of a broken land boom; and most of its citizens were remaining in the hope that they might persuade some incoming stranger to buy them out.

“The little community, which had absurdly been called a city ten years before, had at this time barely ten thousand people—as many as are now employed by a couple of its department stores. It was exhausted by a desperate struggle with mud, dust, floods, droughts, cholera, debt, panics, broken banks, and a slump in land values. Other cities ridiculed its ambitions and called it a mudhole. Its harbor, into which six small schooners ventured in 1847, was obstructed by a sand-bar. And the entire region, for miles back from the lake, was a dismal swamp—the natural home of frogs, wild ducks, and beavers. . . .

“In Chicago, there was at this time no Board of Trade. The first wheat had been exported nine years before—as much as would load an ordinary wagon. There was no paved street, except one short block of wooden paving. The houses were rickety, unpainted frame shanties, which had not even the dignity of being numbered. There was a school, a jail, a police force of six, a theatre, and a fire-engine. But there was no railroad, nor telegraph, nor gas, nor sewer, nor stock-yards. The only postoffice was a little frame shack on Clark Street, with one window and one clerk; and one of the lesser hardships of the citizens was to stand in line here on rainy days.”<sup>3</sup>

Now away behind the frontier the eastern cities had become very large. New York, with its 500,000 people in 1850, was a great metropolis, at least for those days. Some parts of such cities were, of course, much like the whole of crude western ones. The next description shows that; it also shows that even by the middle of the century there was growing up in America an astonishing commercial civilization. And even then American city life was characterized by strong emphasis on size and speed. Hotels were mammoth. Bigger and more expensive buildings had to be put up; there was a clamor for setting a pace.

“ . . . A few minutes brought us over to the lights on the New York side—a jerk or two up a steep incline—and we were rattling over a most abominable pavement, plunging into mud-holes, squashing through snow-heaps in ill-lighted, narrow streets of low, mean-looking, wooden houses, of which

<sup>2</sup>Bacheller, Irving: *A Man For The Ages*, pages 303-304. The Bobbs-Merrill Company, Indianapolis, 1919.

<sup>3</sup>Casson, Herbert N.: *Cyrus McCormick, His Life and Work*, pages 68-69, 70.



an unusual proportion appeared to be lager-beer saloons, whiskey-shops, oyster-houses, and billiard and smoking establishments.

"The crowd on the pavement were very much what a stranger would be likely to see in a very bad part of London, Antwerp, or Hamburg, with a dash of the noisy exuberance which proceeds from the high animal spirits that defy police regulations and are superior to police force, called 'rowdyism.' The drive was long and tortuous; but by degrees the character of the thoroughfares and streets improved. At last we turned into a wide street with very tall houses, alternating with far humbler erections, blazing with lights, gay with shop-windows, thronged in spite of the mud with well-dressed people, and pervaded by strings of omnibuses—Oxford Street was nothing to it for length. At intervals there towered up a block of brickwork and stucco, with long rows of windows lighted up tier above tier, and a swarming crowd passing in and out of the portals, which were recognized as the barrack-like glory of American civilization—a Broadway monster hotel. More oyster-shops, lager-beer saloons, concert-rooms of astounding denominations, with external decorations very much in the style of the booths at Bartholomew Fair—churches, restaurants, confectioners, private houses! again another series—they cannot go on expanding forever. The coach at last drives into a large square, and lands me at the Clarendon Hotel.'"

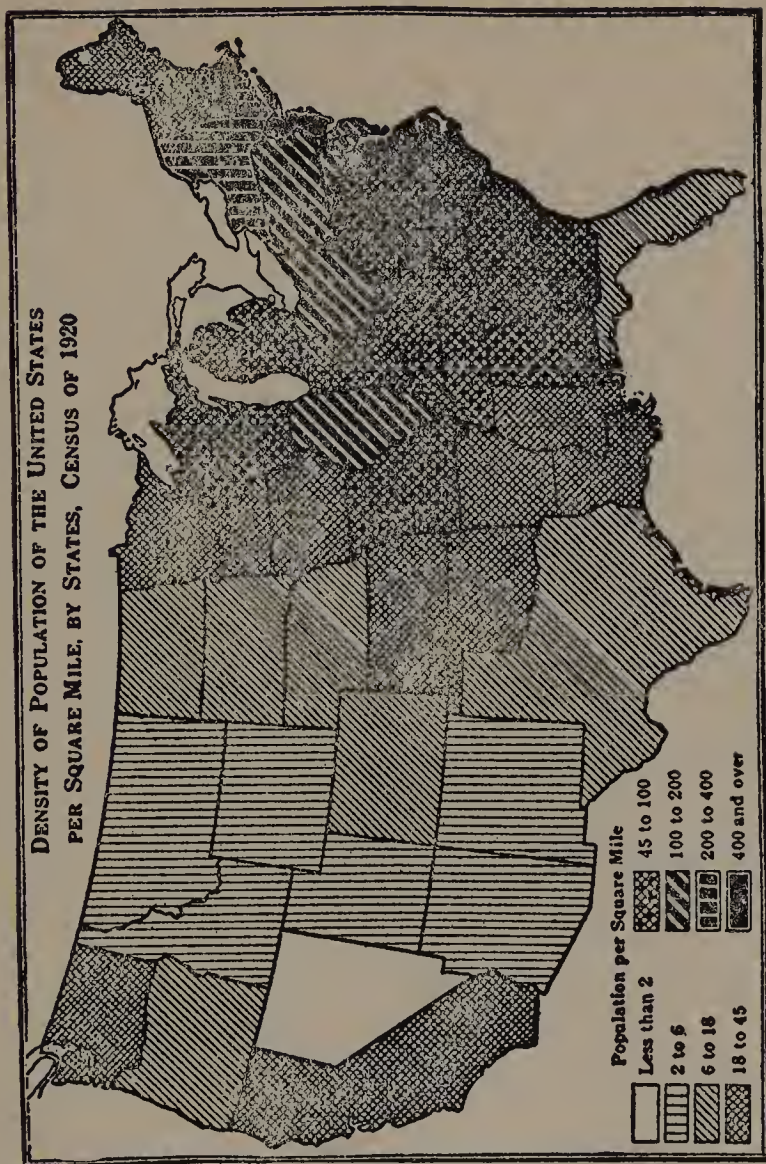
But the crudeness of life even in a city of 200,000 is brought out forcibly by this account of things in New York in 1825.

"... There was a superintendent of streets, but he had little to do with cleaning them. Every occupant of a dwelling house or other building, every owner of a vacant lot on any paved street, must, twice a week, from April to December, scrape and sweep the pavement before his premises as far as the middle of the roadway, must gather the dirt in a heap, and on it must place the ashes and rubbish brought out from his house or cellar. The city was responsible for nothing but the removal of the rubbish and the sweeping of paved streets before unoccupied houses at the cost of the owner. Between December and April no street-cleaning was attempted, and the sole scavengers became the hogs, who were suffered to range at large, provided they had rings in their noses.

"There was a rude sort of fire department, consisting of the chief engineer and his assistants, of the firewardens, and the firemen, hosemen, hook-and-ladder men, whose duty it was to drag the engines to the burning building and attach the hose. Each firewarden was assigned to a particular engine, was responsible for the supply of water, and formed the citizens in two lines stretching from his engine to the nearest pump or well. Up one line went the full buckets; down the other came the empty ones. These buckets belonged to the citizens. Each occupant of a house was still required to have in his front hall the old-fashioned leather bucket marked with his initials, the number of his house and the name of his street. If his house had three or

<sup>4</sup>Russell, William H.: *My Diary, North and South*, pages 8-9. T. O. H. P. Burnham, Boston, 1863.





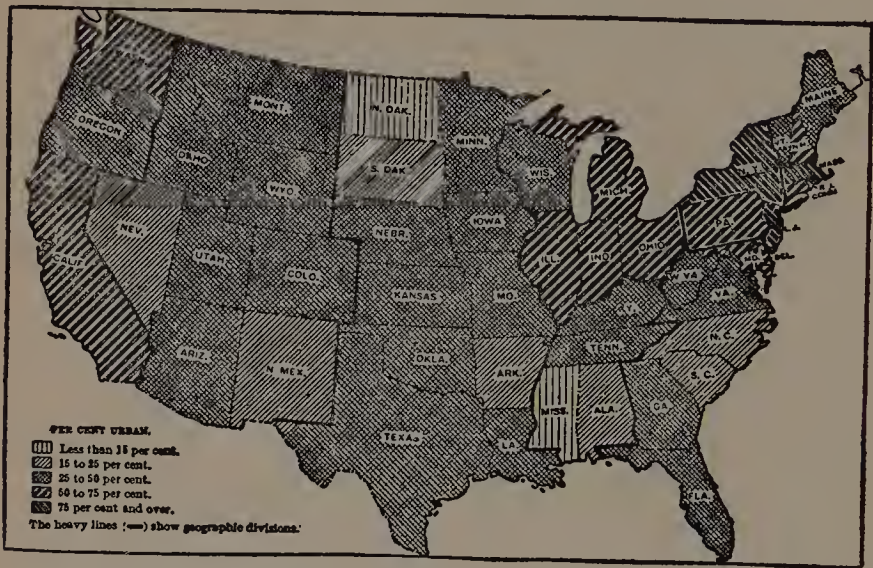
From "The Literary Digest" for October 29, 1921  
Fig. 30

less fireplaces, he must keep one bucket; three to six fireplaces, two buckets; six to nine fireplaces, four buckets; which on the alarm of fire he must put out on the sidewalk to be carried off by the first passer-by. After the fire had been extinguished the owner must seek his property at the City Hall. At night the watch cried the name of the street in which the burning building was, and every occupant of a house put a lighted candle in his window."<sup>5</sup>

<sup>5</sup>McMaster, John B.: *A History of the People of the United States*, Vol. V., pages 124-125. D. Appleton and Company, New York, 1917.

## WHERE AMERICANS ARE LIVING TO-DAY

And what was the situation in 1920? How densely populated was the country then? Figs. 30 and 31 give you the facts to compare with the maps for 1790 and 1820. Are there any states where less than 2 persons are living to the square mile (Fig. 30)? Where? What do you know about the lay of the land, the soil, and the climate in that region that would account for this? Are there any states where 400 people are living to the square mile? Which ones? Why do you think so many are living there? Such a dense population must mean that people are living in houses that are close together; perhaps the people are crowded into apartment buildings. Certainly it must mean that there are many cities there.



This map shows the percentage of the population that is urban in the different states<sup>6</sup>

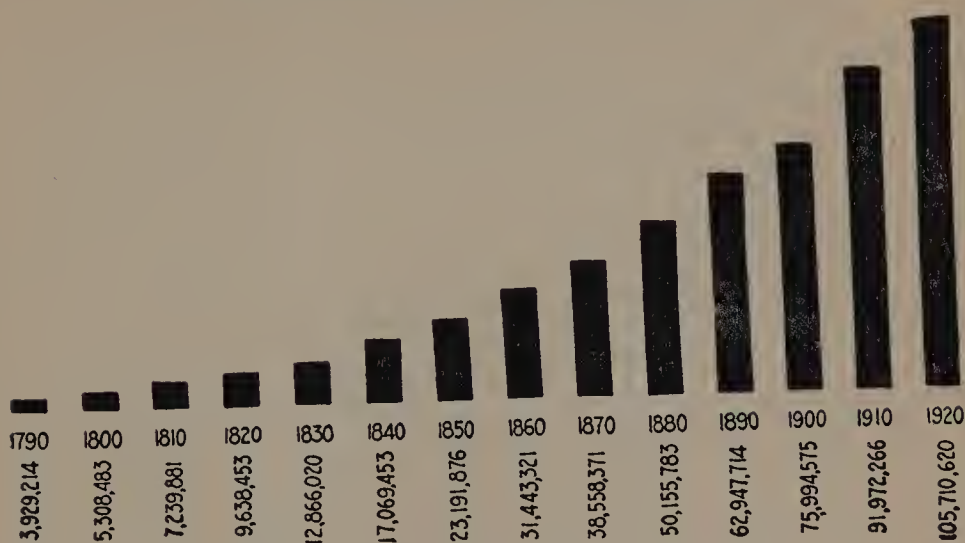
FIG. 31

In general, where would you say people are living most closely together in America? Where is the next most densely populated region? Where the least densely populated?

Study Figs. 30 and 31 together. What are one or two comparisons that you could make? How do the areas where the population is most dense compare with those in which a large percent is urban?

<sup>6</sup>From "Report on Population," Vol. I., 1920. U. S. Census.

## THE RAPID GROWTH OF OUR POPULATION



Population in the United States 1790 to 1920

FIG. 32

One of the most important things to remember about the period of the Industrial Revolution, 1750-1922, is that it has been a time of very rapid growth in population—more rapid than at any other time in the history of the world. This was true of practically all European countries as well. For centuries before they had been quite stagnant, keeping almost the same from generation to generation. Then suddenly, about 1800, the great change came.

The United States is one of the most striking examples of this change. It is perhaps the most interesting one because of its vast resources and large amounts of free land. The bar graphs of Fig. 32 show the steps by which the population climbed. Notice how after 1830 the bars lengthen out at an increasing rate.

CITY POPULATIONS HAVE GROWN WITH  
GENERAL POPULATION

Notice from Fig. 33 how the city population grew as the general population increased. The full length of the bar in each of the years given represents the entire population at the time the census was taken. The part that is blackened represents the number of people living in places of 8000 or more population. When did cities of such sizes make their appearance to any considerable extent? In 1790? 1820? 1840? When? How do you know that?



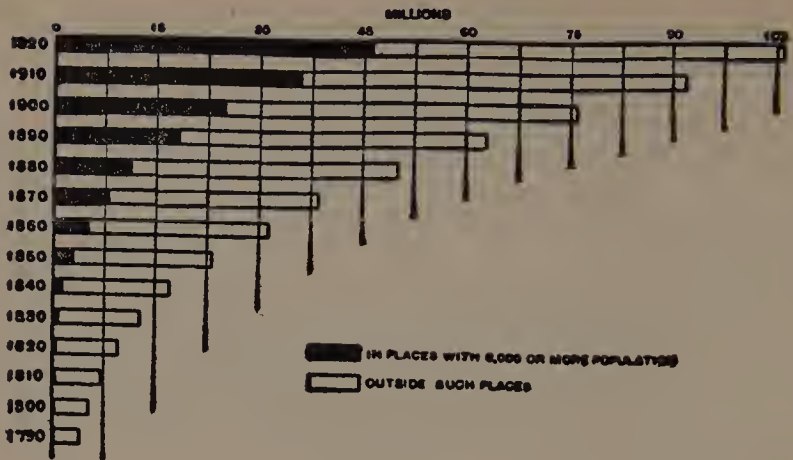


FIG. 33

About what proportion of all our people are now in cities as large as 8000.

Remember, though, that we would call communities only as large as 2500 distinctly "urban" places. So, really, there are many millions more of our people besides that number who are not living on farms.

CITY POPULATIONS IN ALL INDUSTRIAL COUNTRIES HAVE  
GROWN RAPIDLY SINCE 1800

This startling growth of cities is not by any means confined to America. It has been true of every industrial country since 1800. How clearly Fig. 34 shows this!

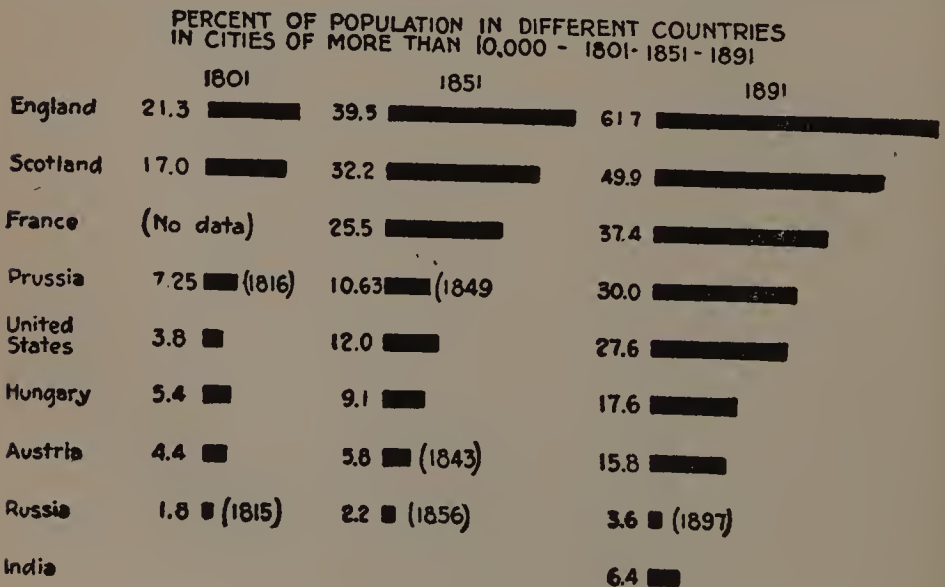


FIG. 34

In which countries were more than one-fifth of the people living in cities of 10,000 or more in 1801? Would you say that a country with such a population was strictly urban?

In 1891 three-fifths of England's population were living in cities. Which ones were less than 25 percent urban? A recent estimate tells us that nine-tenths of England's population live in cities now! Many folks think we are crowded here in the United States with only half of our people in cities. Yet think of the difference—whereas we have an average of 20 persons to the square mile, England has about 400. So you see our problem of cities is no greater, probably not so great as that of other countries.

#### HOW RECENTLY AND HOW RAPIDLY HAVE AMERICAN CITIES THEMSELVES GROWN?

On page 158 is a graph that answers this question for fourteen of our important cities.

Not all these cities, however, grew in the same way. Some are old port or river cities, like Boston or Louisville. Note how slowly these two grew at first when pioneer conditions prevailed, before machines and factories came, and before transportation was improved. But when railroads reached the Ohio Valley, when the reaper began to sell in Ohio, Indiana, Illinois, and Kentucky, and when steamboats plied up and down the Ohio—then Louisville grew and grew rapidly. See how steep the curve becomes after 1840.

Then there's the city that builds up around a new industry. Lowell is a good example. Started suddenly in the 1820's by the establishment of the textile mills, its population has mounted steadily decade by decade.

Do cities grow up where unusual natural resources are discovered? Yes, indeed. Scranton, an older city, Tulsa and Los Angeles, new-born cities, are fine examples of this. Scranton was founded in 1840 and made very slow progress until about 1860. Then it boomed! Why? Vast anthracite coal deposits in and about Scranton came into great demand for use in the expanding steel business. The Kelly-Bessemer process became commercially practicable in the 1860's. The Civil War was on between the North and the South. Steel and iron in enormous quantities were being demanded for both war and peace-time purposes. So, the coal business thrived and Scranton grew.

A real boom city, do you ask for? Look at Tulsa. Less than 1000 people in 1900—over 70,000 in 1920! How could it happen? What was the magnet to draw 70,000 human beings to such a locality—for it wasn't especially favored by transportation facilities, water power, or the like? Oil! Is there any natural resource of more crucial importance to our industrial civilization than oil? Perhaps you think coal is; but consider how difficult it is to get the coal from the earth and how easy and cheap it is to get oil. In 1904 large deposits of oil were discovered in Tulsa. Immediately people flocked there as they did in the California and Alaskan gold rushes. During that year 14,000,000 barrels of oil were taken from the earth. Eleven years later, 1915, 97,915,243 barrels! And along with the discovery of oil, came that of natural gas.



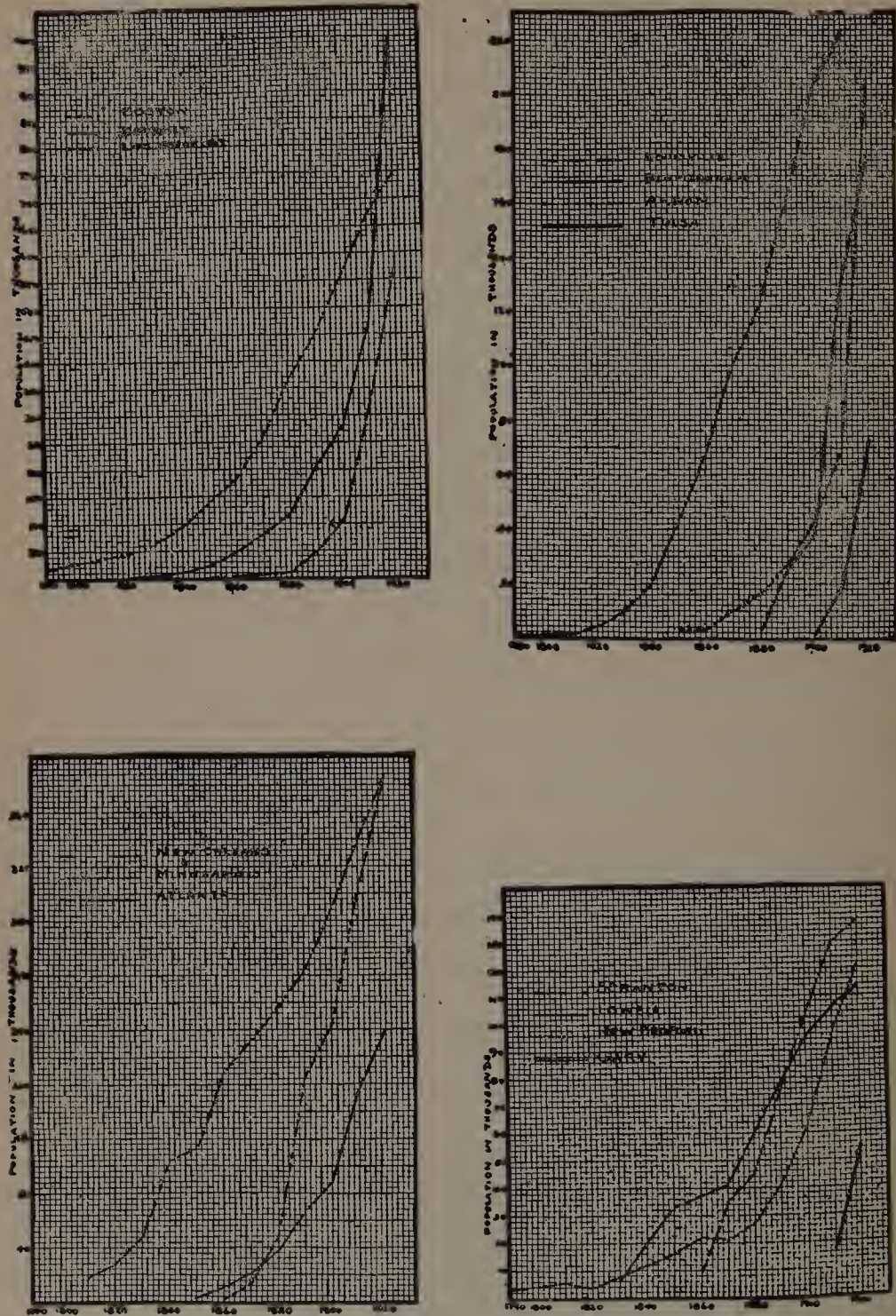


FIG. 35

Much the same sort of circumstances account for the astonishing growth of Los Angeles since 1890. Two things help to explain it; first, the large amount of irrigation that has developed recently; and second, the rapid increase in the citrus fruit business around Los Angeles that came with it. In 1900 there were 25,657 acres about Los Angeles cultivated under irrigation; by 1910, the number had increased to 39,352 acres.

But one of the greatest single causes of the growth of population in the Los Angeles district has been the sharp increase in the amount of oil produced there. Note these startling figures:

1899.....	2,000,000 barrels
1912.....	86,450,000 barrels
1918.....	99,731,177 barrels


The most rapid advance came between 1911 and 1912.

Akron and rubber! From way back before the Civil War there had been a little town at Akron, Ohio. In 1860 it contained a few thousand souls. In 1900 it was still a small city of 40,000. Twenty years later it housed 209,000 people! What was the secret? More than anything else, rubber and the rubber-tire industry. As early as 1869 Dr. B. F. Goodrich founded his rubber business, which was the nucleus of the great industry that has grown up in that place. Can you tell why the population should have grown so slowly until 1900 and then have mounted so rapidly—especially after 1910? Look back at Fig. 35.

As regards the other cities we leave to you the task of finding out why they grew as they did. Detroit? Long slow development until 1900—and then tremendous progress. Why? Birmingham, almost a straight steep growth from 1880 to 1922. Why?

Gary—a made-to-order city—a bleak sand dune on the shore of Lake Michigan in 1905; 70,000 people in 1920. Why?

#### Startling Multiplication of Features of City and Industrial Life

Growth of population 1 

Note how much more rapidly urban and industrial activities have grown than population, large as that is.

No. of times faster, than population, each of the following has grown







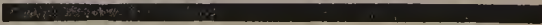
No. wage earners	
No. miners	
No. city dwellers	
No. clerks, salesmen and typists	
No. corporations	
No. banks	
No. transport workers	

Fig. 36

Now we have already learned that, although population grew rapidly, railways, manufactures, and the production of great natural resources grew still faster. Fig. 36 shows the ratios. Compare the lengths of the different bars with the population bar. Study each item carefully and see if you can explain the different ones.

#### EXERCISES FOR PUPILS ON OTHER CITIES

*To the Teacher:* With these illustrations in hand, we suggest that you assign to individual pupils the task of making a graph showing the increase in population of particular cities since their beginning, or since 1790 for some, and of reporting to the class the causes for the growth of these cities. Statistics of populations for particular cities are to be found in Vol. I, *Population*, of the 1920 Census Report, Bureau of Census, Washington, D. C.

Assign cities which represent different types of growth, e. g., port cities showing a slow, steady growth; perhaps a rubber city like Akron, Ohio; an automobile city like Detroit; an inland city like Denver; a boom (oil) city like Tulsa, Okla. cities that have "petered out"; etc. Bring out the causes that account for the growth and decline of cities.

Your teacher will assign you cities on which to collect data and make graphs. Follow the directions she gives you.

Following the foregoing units, the pupil meets next: X. "The Concentration of People in Cities: What Caused It?" (pages 162-166). In this, four causes are sketched. The fourth illustrates our use of episodes; so we give it verbatim:

#### 4. TO WHAT EXTENT DID THE GROWTH OF CITIES DEPEND ON THE DISCOVERY OF GREAT NATURAL RESOURCES OF IRON AND OIL?

Let us see, though—manufactures? To manufacture, one must have raw materials. To make reapers, one must have iron and wood and other things. To make printing presses, one must have iron. To make engines, one must have iron and other metals. To make the engine go, one must have gasoline. Gasoline, of course, is made from oil. So iron and oil appear to be pretty important in these days.

Now if manufactures depend on iron, then the growth of cities too must have been effected, indeed hastened, by the discovery of iron and oil. Look back at Fig. 35. Do you notice how the different cities grew very fast after 1870? There were several good reasons for that. One, of course, was the close of the Civil War and the great demand that followed for manufactured goods. Another big one was that many of the inventions had become commercially practicable and were finding their way into use in manufacturing. But there is another very important reason: the discovery of great stores of iron ore in the North Central States, Minnesota especially. The United States is fortunate in being the greatest iron store-house of the earth. We have 20 percent of all the iron now known to be deposited in the earth. How long



have we known about our deposits? Most of them have been known only since 1860-1885; they lie at the western end of Lake Superior.

Since early colonial days Americans had known of small deposits along the Atlantic Coastal Plain—as far west as Pennsylvania. But between 1860 and 1885 pioneers of the northwest woods made three important discoveries of huge beds of iron ore. Not only were the deposits large, but they were easy to dig out, lying right on the surface of the ground. Here are stories of the way they were found.

“Until fifty years ago, our iron ore came from the Eastern States, mainly from Pennsylvania and New York. The famous Cornwall mines, near Lebanon, Pennsylvania, were the richest in America. They remained in the Grubb and Coleman families for more than a hundred and fifty years, and yielded nineteen million tons. The best New York mines were at Port Henry, on Lake Champlain, turning out fifteen million tons in the last hundred years. Until the Civil War, there was enough ore to supply the demand. Then the output of iron almost doubled in three years, prices were trebled, the tariff was raised, and the railroad boom began.

#### “THE SEARCH FOR IRON ORE”

“‘We must have more ore,’ cried the excited iron-makers, confused by this unforeseen rush of prosperity.

“The answer to the cry came from the far western end of Lake Superior—from a roadless, houseless wilderness, inhabited only by the bear, the moose, the wolf, and a few wandering tribes of the Dakotas. Strictly speaking, the answer came nearly twenty years before the question, but as usual the iron-makers at first did not hear it or did not believe it. It came, as always, from an unexpected quarter and not from the regular authorities on the subject. ‘Impossible!’ said the men of technical knowledge. ‘Absurd!’ said the men of money. But the halloo of the few pathfinders persisted, until one by one the suspicious men of iron and steel began to follow the rough trail that led to boundless wealth. To-day that halloo has become a ‘Te Deum,’ chanted at every gathering of the American Iron and Steel Association.

“The Christopher Columbus of the Lake Superior ore region was Philo M. Everett, an adventurous citizen of Jackson, Michigan. The following story of his memorable journey, which deserves to be ranked with the ride of Paul Revere, has been gleaned from manuscripts loaned by Peter White, of Marquette, the only survivor of those heroic days.

“In the spring of 1845 Mr. Everett became friendly with a couple of Indians—a half-breed named Louis Nolan and an old chief, Manjikijik, who offered to guide him to ‘a great mountain of solid iron.’ At first the proposed trip was laughed at by the citizens of Jackson, but Everett persevered and organised a company of thirteen subscribers to supply the necessary funds. In spite of the unfortunate reputation of this particular number, there has never been a trip that was luckier, either for them or for the nation.

"Taking four men and his Indian guides, Everett travelled north to Lake Superior, bought a small sailing skiff, and coasted westward.

" 'I was most of the time with Indians of the wildest nature,' he says. 'We incurred much danger and hardship. Sometimes our sails would not flop, and in fifteen minutes we would have a gale, the seas running as high as a house. We were often wet for days together.'

" 'After six weeks' travel by water and land, the Indians suddenly stopped and pointed to a distant black hill, very conspicuous from the trail.

" 'Iron mountain! Indian not go near! White men go!' said the Indians, who were prevented by a tribal superstition from venturing near the spot."

#### "EVERETT'S WONDERFUL DISCOVERY"

"The white men went, and found 'a mountain a hundred and fifty feet high, of solid ore, which looked as bright as a bar of iron just broken.' Mr. Everett had seven permits from the Secretary of War, each one giving him authority to lay claim to one square mile of ore land. He located his claims, and with pockets full of nuggets the little party made its perilous way home."

#### "THE MOST WONDERFUL RANGE OF ALL"

"And now comes the story of Mesaba—there are at least five ways of spelling the name—the last and greatest of the world's iron ranges. This range lies mainly in St. Louis County, Minnesota, north of Duluth, and farther west than the others. It extends over a huge tract at least twice as large as the State of Rhode Island.

"A few years before the Civil War a hardy woodsman named Lewis H. Meritt emigrated from Chautauqua County, New York, to Duluth, with his wife and family of four small boys. When the 'fool's gold' excitement began, he was one of those who followed the yellow will-o'-the-wisp through the northern wilderness. He found no gold; but he brought home a small paper parcel of red iron ore, and showed it to his sons, now in their teens. He taught them its value, and told them of a new unexplored range which in his opinion was a store-house of mineral wealth.

"Soon afterwards, the four brothers, Leonidas, Alfred, Andrus and Cassius, plunged into the forest and became expert and daring woodsmen. To and fro in the whole north region they ventured, until they became the Leatherstockings of Minnesota. Although their abilities fitted them for woodcraft and not for business, within twenty years their knowledge of timber lands made them fairly wealthy men. As soon as they had accumulated sufficient capital, they withdrew from the timber business, and in 1885 located their first iron mine."<sup>7</sup>

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<sup>7</sup>Casson, Herbert N.: *The Romance of Steel*. Pages 49-50. A. S. Barnes & Co., New York, 1907.

<sup>8</sup>Casson, Herbert N.: *Op. cit.*, pages 55-56.



## "THE TREASURE PITS OF THE MESABA"

"A Mesaba iron mine is one of the world's wonders. The ore is not buried deep in the earth, but lies just underneath the surface in heaps and hills, as though a tribe of friendly gnomes had mined it. There are no sunken shafts, no sunless caverns and subways, no burrowing miners turning the tireless drills by the light of a flaring torch. A Mesaba mine is as open to the daylight as a brickyard. Some, with terraced sides, resemble vast amphitheatres; others, wide and shallow, are not unlike the switching-yard of a railroad; and a few suggest extinct volcanoes, which in their last gasp had exploded and torn open their red sides.

"In some places the ore is barely hidden by a foot of loose soil, but usually about fifty feet of earth covers the food for which four hundred furnaces are always hungry. One body of ore is two and a half miles long, half a mile wide, and from one hundred to four hundred feet thick. The thickest mass is four hundred and forty feet through, dwarfing the tallest of our skyscrapers. There are five of these immense treasure-pits whose total product is eighteen million dollars' worth of ore each year.

"The Mesaba ore is not hard and rocklike. Instead of blasting it loose, as is done in other iron ranges, the Mesaba 'miner' is merely a man who operates a steam-shovel. Eight workmen can handle one shovel, and under favorable conditions they can load more ore in one hour than five hundred delving miners can bring up in a day from the average rock mine. At every swing of the steam-shovel's powerful arm, five tons of ore drop into a big steel car. The arm swings twice a minute. . . ."

". . . Three little towns—Hibbing, Virginia, and Evelyth—have sprung up in hothouse haste. Hibbing, the largest, has a population of six thousand, and boasts a department store, three banks, two newspapers, electrical lights, and a hotel with six-course dinners and menus printed daily. More wonderful still, it has a theatre which can seat twelve hundred—a palace of pleasure which is 'a dream of sparkling lights and mellow tints charmingly blended,' to quote a proud editorial from the *Mesaba Ore*. A dozen mines, including the Burt and the Mahoning, are within walking distance of the depot, and the Stevenson is seven miles distant.

"There is no industry on the Mesaba except mining. The wooded wilderness encircles every town and mining village, and at night the howl of the wolf is heard as he slinks across the railroad track or starts at the light in a log-cabin window.

The topics following these sample units are as follows: XI. "What Industrial America Owes to its Natural Resources" (pages 174-184); XII. "The Corporation Developed as a Means of Accumulating Capital" (pages 185-217); XIII. "How the Industrial Revolution Forced the Laborers to Form Unions" (pages 218-229); XIV. "We Must Now Turn to the Study of Another Side of American Life" (pages 230-231).

## CHAPTER XII

### A COLLEGIATE SURVEY COURSE IN THE SOCIAL SCIENCES<sup>1</sup>

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JOHN J. COSS  
Columbia University, New York City

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Columbia College, as every other college in the land, was stirred by the war from its accustomed course and brought into closer contact with the affairs of men. A course in War Issues was given in which, among others, the Departments of History, Philosophy, Economics and Government participated. With the end of the war and of the S. A. T. C. the question was asked: "Are there no issues of peace which are equally important for the student to consider?" The departments named felt that there were such issues and in the spring of 1919 coöperated in the preparation of a Syllabus which was eventually called "An Introduction to Contemporary Civilization."

In the fall of 1919 a five-hour required course with this title was introduced as compulsory for all freshmen and a three-hour course in introductory philosophy and a three-hour course in modern history ceased to be requirements and were continued as electives only. The course is now being given for the fourth time, and each year has again demonstrated its utility.

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<sup>1</sup>*Introduction to Contemporary Civilization: a Syllabus*. Third edition, New York, Columbia University Press, 1921.

See also: C. S. Baldwin, "A focus for freshmen," *Columbia University Quarterly*, XXI (1919), 74; C. J. Keyser, "A word about the new wisdom and its obligations," *ibid.*, 118; J. J. Coss, "The new freshman course in Columbia College," *ibid.*, 247; J. J. Coss, "The Columbia College course on contemporary civilization," *The Historical Outlook*, XIII (1922), 204; Isidor Ginsburg, "An experiment in social education," *The Educational Times* (London), N.S. IV (1922), 238; Ernest H. Wilkins, "Initiatory courses for freshmen; Report by Committee G," *Bulletin Amer. Assoc. University Professors*, Vol. VIII, No. 6, October 1922.

The content of the course is as follows:

INTRODUCTION TO CONTEMPORARY CIVILIZATION

First Division. Civilization and Its Basis

Book I. The world of nature

1. Man as a product of nature
2. Man as a controller of nature

Book II. The world of human nature

The uniqueness of human behavior

1. Animal behavior compared with human
2. The types of human behavior and their social significance

Individual traits which are socially significant

1. The basic human desires
2. Man as social and individual
3. Wide variety in man's ability and interests
4. Language and communication among men
5. Racial and cultural continuity

The career of reason

1. Religion and the religious experience
2. Art and the aesthetic experience
3. Science and scientific method
4. Morals and moral valuation

Second Division. Survey of the Characteristics of the Present Age

Book III. Historical background of contemporary civilization, 1400-1870

Introduction: The fundamental conceptions of the present age

1. The intellectual outlook of the Renaissance—the birth of modern science, and the rise of national cultural traditions in Western Europe
2. The commercial revolution
3. The agricultural revolution
4. The industrial revolution
5. The development of thought in the 18th century—humanitarianism, rationalism, and romanticism
6. The American revolution
7. The French revolution
8. Napoleon Bonaparte's work in preserving and spreading certain ideas and achievements of the French revolution

9. Unsuccessful attempt of Metternich and the conservatives to restore and preserve the old regime, 1815-1848
10. The revolutionary movements of 1848-1850
11. European struggles for nationalism and democracy, 1850-1871
12. Nationalism, democracy, and the industrial revolution in the United States from Washington to Grant

Book IV. The recent history of the great nations, 1871 to the present

Introduction: Important factors in the development of civilized nations since 1871

1. The United Kingdom and the British Empire since 1867
2. France since 1870
3. Italy since 1871
4. Germany since 1871
5. Austria-Hungary, 1867-1918
6. Russia since 1855
7. The Near East
8. The Far East
9. Middle and western Asia
10. Africa
11. Australia and the islands of the South Pacific
12. American development since 1871
13. The diplomatic background of the world war
14. The world war, 1914-1918
15. The continued struggle for markets and power

Third Division. The Insistent Problems of To-day

Book V. The problems of imperialism and the "backward peoples"

1. The old colonial movement and the new imperialism
2. "Backward peoples" and the dogma of race superiority
3. The problems of imperialism

Book VI. Problems of nationalism and internationalism

1. National self-determination versus historic, ethnic, strategic, geographic, and economic claims
2. The problem of war and peace
3. Individualism, nationalism, cosmopolitanism

Book VII. The problems of conservation

1. Definition
2. Importance
3. Conservation of natural resources
4. Conservation of plant and animal life
5. Conservation of man

Book VIII. Industrial problems

1. A survey of the prominent features of the modern industrial system
2. The organization of production: problems arising from the conflicting interests of certain of the agents of production
3. The organization of production: competition versus combination and monopoly
4. Problems connected with the distribution of the annual social income
5. The problem of control in industry

Book IX. Problems of political control

1. Conflicting estimates of political democracy
2. The problem of popular control
3. The problem of centralization versus decentralization
4. The problem of securing efficient administration
5. The problem of determining the sphere of governmental activity
6. The problem of homogeneity

Book X. Educational problems

1. The nature and aims of education
2. The agents of education in contemporary civilization
3. Current educational problems

Appendix

Part I. The world of nature

Part II. Historical map studies

1. The commercial revolution
2. The industrial revolution
3. Europe in 1815
4. National unification in Europe, 1850-1914
5. European expansion
6. Europe in the world war



**Part III. Studies on the insistent problems of today**

1. Race
2. The conservation of natural resources
3. The conservation of man
4. Immigration in the United States
5. The distribution of wealth among various classes of society
6. The problem of illiteracy
7. The geographical distribution of institutionalized religion

The aim of the course is to increase the ability of college men to consider social questions intelligently and to see how intimately connected in their solution is the information furnished by psychology, history, ethics, economics, and government. It is an endeavor to bring caution and the consideration of all available data into decisions as to the utility and desirability of proposed solutions to the insistent problems of to-day. It is propaganda for nothing save the application of reflection to the perplexing problems which must be solved if the world in which we live is to be increasingly a more satisfactory field for human endeavor. Dewey's definition of reflection can scarcely be improved: "Active, persistent and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it, and the further conclusions to which it tends, constitutes reflective thought."<sup>2</sup>

The course is intended to bring to students entering college a sense of the serious character of a responsible and thoughtful life. In a sense it is an introduction to the more mature attitude which should and usually does characterize the college as contrasted with the high school.

The contributions from many fields which are a necessary part of the course serve as a kind of test in interest and an indication of those lines of future study which the student will pursue. The full range of the social sciences opens out from the course, and many students come to realize for the first time both the interrelation of these sciences and their possibilities for further study.

The process of preparing the course, and its administration may suggest ideas which are likely to prove useful in similar enter-

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<sup>2</sup>John Dewey, *How We Think*, p. 6.

prises. The syllabus is a coöperative product. It is no one instructor's opinion, but the best thought and judgment of a group with varied training and different major interests. It is better balanced and in fairer proportion for this joint effort. Required courses in which large numbers of students receive instruction year after year call for the most scrupulous care in the preparation and presentation of material. The coöperation was possible because all those participating, whether from the Departments of Economics, Government, Philosophy, or History, felt this fact keenly and subordinated special or vested interests in an effort to produce the sort of course which the aim indicated.

Not more than thirty-five nor fewer than twenty students form a section. One instructor, chosen from the coöperating departments, carries a section through the entire course. Material not in his special field he works up for the course. This effort requires a keen realization of the value of the course, but it has proved possible and profitable; profitable for the student because of the unity which it brings to class work, and profitable to the instructor because of the broadened outlook and increased appreciation of the bearing of fields related to his own specialty.

The twenty instructors meet weekly for luncheon and conference. These gatherings have become one of the most pleasant incidents in university association. Interdepartmental friendships and exchange of ideas are present as never before.

No instructor teaches more than one section. In each department provision is made that the teaching program of instructors in the course include one highly specialized course in the instructor's field of major interest. Such union of general and special teaching is productive of both broad and original scholarship.

Each class elects from its number a representative. The group of representatives meets for discussion of the work of the course and the members present their findings at a dinner given to them by the instructors. In the spring session a ball game and dinner in the open vary the program. The results of this coöperation have been most gratifying.

The methods of instruction are discussion, questioning, and informal lectures. Short quizzes are given at least once a week. For

the final and for the monthly examinations the new form of multiple-question content examination of the psychological type are given. The final examination has two parts: a two-hour examination of true-false, completion, and recognition type; a one-hour examination of the essay type on two questions requiring organizing and coördinating ability exercised on major ideas in the course. The correlation of this final examination with the college entrance psychological test of three and a quarter hours is .78, the highest correlation of any subject save mathematics and physics.

Difficulties the course has: It requires excellent teachers with a broad interest in real education. It presupposes the surrender of special vested departmental interests. It needs revision frequently. It necessitates the revamping of introductory courses in each department, since some of the material previously given in such courses is now given in the survey course. It requires the purchase of one copy of each required text for each twelve students.

Students almost uniformly consider the course the most interesting and valuable instruction of their freshman year. Students who took the course in 1919 tell us of the profound effect it has had on their whole college course.

As an indication of the significance of this interdepartmental course I quote the following from the report of President Butler for 1921-22: "A most unhappy result of the elective system introduced a generation ago, and one that was not foreseen, was the destruction of that common body of knowledge which held educated men together in understanding and in sympathy. For more than a thousand years educated men had pursued pretty much the same studies, had read pretty much the same books, and had gained a common stock of information concerning man and nature. The elective system first weakened and then destroyed that common body of knowledge, and as a result brought in its train intellectual, moral, social, and political consequences that are nothing less than grievous. The narrowing of one's field of information to the subject in which he early displays the greatest interest, means cutting him off from intellectual contact and sympathy with all but his own fellow specialists. Intellectual, moral, and social unity is broken up, and classes, cliques, and groups become first influential

and then dominant. Civilization cannot be so maintained, much less advanced. If the educated men and women who are the natural leaders of modern society have little or nothing in common, the doom of such leadership is sealed.

“It was manifestly impossible and undesirable, for many reasons, to reinstate the old prescribed program of college studies. The world had outgrown it; but the world had not outgrown, and will never outgrow, the principles upon which that prescribed course of study was based. In seeking for a substitute, and with the direct aim of providing a common body of knowledge and a field of common interest for the undergraduates in Columbia College, the Faculty wrought out and introduced the course of instruction known as ‘Introduction to Contemporary Civilization,’ attendance upon which is prescribed for freshmen five times weekly. This course, which claims the energies of some twenty of the most competent and zealous of the College teachers, has been from the outset a pronounced success, and is now fortunately being imitated elsewhere. By its survey of the origins and present character of the fundamental problems which confront the world of to-day, it offers a body of instruction both interesting in itself and highly practical, whether as a foundation for more advanced knowledge or as a means of uniting those who follow the course by a common bond of much strength, no matter how diverse may be their later and more special studies. The making and the introduction of this course have been a distinct achievement and a contribution, both original and rich, to the solution of the American college problem.”



## SECTION III. HOW THE NEW CURRICULA ARE BEING CONSTRUCTED

### CHAPTER XIII

#### BASIC FACTS NEEDED IN HISTORY AND GEOGRAPHY; A STATISTICAL INVESTIGATION

CARLETON W. WASHBURNE,  
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As a foundation for all more advanced courses in the social studies we usually require some knowledge of the basic facts of history and geography. This chapter, like Chapter V, deals with a course designed to meet this demand. There are, in theory at least, those who would teach even these facts in a series of contemporary problems, explained by past events; but there is little justification for this extreme view, either from the standpoint of interest or of use. A fact course may be made fully as interesting as a problem course. For young children it may, perhaps, be made more interesting. From the standpoint of use, we make probably much more application of fact knowledge than of social problem solving in actual life. Therefore, both for those who would make each day of a child's education worth while in itself, and for those who would prepare children for future needs, a knowledge of the outstanding facts in history and geography is desirable.

But what are those outstanding facts? How can they be determined? What is their relative importance? How can they be woven into a satisfactory curriculum? These are the questions which the Winnetka Social Science Seminar has attempted to answer.

The seminar, now in its third year of work, has consisted of from twelve to fifteen well trained and experienced teachers.<sup>1</sup> It

<sup>1</sup>The members of the seminar are, or have been, the following: 1920-'21: Eleanor Stille, Sarah Greenebaum, Ruth Ostlund. 1920-'21-'22: Emma Williams, Muriel Vernon, J. Anthony Humphreys. 1921-'22: Wilda Bayes, Edel Liebe, Ruth Harshaw. 1920-'21, 1922-'23: Edna Harry Cleveland. 1922-'23: Muriel MacKay, Claire Lippman, Jeannete Baer, Marion Gram, Eva Cox, Martha Ratliff, Georgia Pearson, Willard Beatty. 1921-'22-'23: Katherine Michael, Soren Ostergaard. 1920-'21-'22-'23: LaReina Bubbett, Marion Carswell, Louise Mohr, Julia Stipe Ostergaard, Carleton W. Washburne.



meets one evening a week for discussion and research. From December 1, 1921, to December 1, 1922, it had financial help from the Commonwealth Fund in New York, and thereafter from the Winnetka Board of Education. This help has enabled it to employ a full time research worker and a clerk. The research worker during the first six months was Dr. Charles S. Pendleton, now at Peabody College. Since that time it has been Louise M. Mohr.

In order to determine the outstanding facts of history and geography, we had first to decide why these facts were to be taught—what use they were to have in life. We knew that a person who was not aware that Paris was a city in France, rather than a river in South America, for example, or one who thought that Caesar, Confucious, and Columbus might all have been personal friends, was obviously an ignorant person. Such a person could not read nor converse intelligently with people who were likely to refer to Paris or Caesar, with an assumption that their hearers or readers knew something about them. We therefore decided that one very important function of history and geography teaching was to make children familiar with those persons, places, dates, and events which are commonly known to intelligent people.

At this point the question arose as to whether or not we should try to give the children *more* knowledge than was commonly possessed. It seemed to us that eventually this should be done, but that the determination of this additional knowledge would be a different problem from the determination of common knowledge. Additional information would not have as its main function the making of intelligent readers. Its function might be to help secure certain attitudes or to solve certain problems. Therefore it would be determined by the attitudes one wished to inculcate or the problems one wished to solve.

Our purpose was neither of these. We wanted first of all to find out what facts children must know in order to be reasonably intelligent concerning those persons and places and events to which frequent allusions are made. Our investigation, therefore, resolved itself into a study of allusions.

Allusions to historical and geographical facts are made in conversation, books, and periodicals. Since we had no army of stenog-

raphers, we could not make a statistical study of allusions in conversation. We might have used books. But books are usually either purely fiction or else devoted entirely to some one general subject. In order to make an adequate study of books we should have had to examine a prohibitively large number of them. We should have had great difficulty in getting even a fair sampling of them.

Periodicals, however, offered us a fertile field of miscellaneous articles of all kinds, with a liberal sprinkling of fiction. Furthermore, they form a very considerable portion of the reading of most Americans. Since many writers of books also write for periodicals, the allusions in one are probably those of the other. In all likelihood, too, our conversation tallies fairly well with our reading in this respect. The seminar therefore decided to investigate the allusions in periodicals. It hoped, thereby, to secure information as to the facts that are common knowledge and that are met in conversation and general reading. It knew, definitely, that the facts frequently alluded to in periodicals must be taught if our children are to read intelligently.

In selecting the periodicals the seminar was guided by these considerations:—type of subject matter, generality of distribution, and period of time covered. With these considerations in mind four “literary” periodicals were selected: *Atlantic*, *Bookman*, *Century*, *Scribner’s*; five popular fiction periodicals: *American*, *Cosmopolitan*, *Saturday Evening Post*, *Ladies’ Home Journal*, *Good Housekeeping*; five news periodicals: *World’s Work*, *Literary Digest*, *Outlook*, *New Republic*, *Nation*; and four newspapers: *New York Times*, *Chicago Tribune*, *Chicago Herald-Examiner*, *Christian Science Monitor*. We chose about fifteen issues of each of these periodicals, three every third year, in such a way that one periodical or another covered almost every month of every year from 1905 to May, 1922. In this way we avoided seasonal weighting of items, and secured information over a wide enough range of years to avoid the danger of over emphasis of purely transitory material.

Having thus determined the scope of our investigation, the actual reading was begun. We went through each issue of each

periodical, from beginning to end (excluding advertisements), and recorded every allusion to a person, place, date, or event, on a slip like the following:

Person-Place-Date or Event	No. Articles	No. Times
Periodical .....		
Date of same.....		
Information	Allusion	Special Article

We did not note those allusions which were unknown to all members of the seminar. During the first part of our study we also omitted from our record, allusions to certain facts that seemed so obviously well known as to make a check unnecessary. This list included such names as America, Atlantic Ocean, and George Washington. Later, however, we decided not to exclude any known facts, so that during the latter part of our study no allusions were omitted on the ground of being too well known. Those that had been omitted at first were multiplied by an index number that brought them to approximately their proper ranks in the great bulk of allusions which were listed from the beginning. The index number was computed from the detailed statistics of a hundred items. A full description of this computation will be found in a recent issue of the *Journal of Educational Research*.

Altogether we noted 81,434 allusions. The slips on which they were recorded would fill several bushel baskets. We arranged these slips alphabetically, so that all that bore on one item would come together. We then transcribed them on large sheets, with years indicated by horizontal rows, periodicals by vertical columns. We thus recorded all allusions to any one item on one sheet. Such a summary sheet is reproduced herewith.

The vertical marks on the summary sheet represent allusions; the horizontal marks, the number of articles in which the allusions occur.

We further summarized each sheet by noting four things at the top: (1) the number of "*periodical-years*." This was found by counting the squares in which allusions were noted. This made periodicals and years of equal value. Virtually, it weighted each



year by the number of periodicals containing allusions to the item in question during that year. The "periodical-years" showed general spread of allusions over both time and periodicals, and consequently showed the likelihood of meeting them. The maximum possible was 261 periodical years. (2) The *range* of years. This was found by noting the lapse of time from the first year in which an allusion was found, to the last. The maximum possible in our study was 18. (3) The number of *articles* containing allusions to the item in question. (4) The gross number of *allusions*.

At first it might seem that gross number of allusions would be a reasonable basis for ranking our items according to importance. A study of the records showed that this was not the case. One article might have a surprisingly large number of allusions to an item that was almost never mentioned again in other articles. Or, during a certain space of time, a number of periodicals might give much space to a current event that soon died out—such as the battle of Lemberg, or the candidacy of Cox. All things considered, the periodical-year was found to be the most reliable figure for ranking purposes. It gave an almost perfect index as to the probability of meeting allusions to the item. We therefore ranked our items according to their periodical-years.

When more than one item had the same number of periodical-years, we ranked them by their spread of years—the lapse of time between first and last allusions. If some were still tied, we further ranked them by number of articles containing the allusions; and finally, if some were equal even after this, we used gross number of allusions to show which was most important. We thereby obtained a strictly objective ranking of all our items.

On our final list, we included only those names, dates, and events which occurred in more than 6 periodical-years. These items have a gross frequency of 61,616 recorded allusions. When we extend our original exclusions of very common items by the use of the index number, the total gross allusions to items with six or more periodical-years becomes 96,303. The list of these items is reproduced herewith.<sup>2</sup>

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<sup>2</sup>Differences between these totals and others previously published are due to errors found in careful checking.



This list gives the relative probability of meeting allusions to the persons, places, and events named. It shows, therefore, the relative importance of these items from the standpoint of enabling children to read intelligently. It forms, furthermore, an objective basis for a fact course in history and geography.

The first 50 items only are recorded in full, with number of periodical-years first. Then follow, in order, the number of years elapsing between first and last allusion to the item (second column), the number of articles in which such allusions occur (third column), and the gross number of allusions (fourth column). The remainder of the list is also arranged in exact order, but in it only the number of periodical-years is printed.

America (meaning U. S.).....	103	18	1211	5903
England .....	103	18	1155	3315
France .....	100	18	1390	3848
New York (city).....	100	18	911	2386
China .....	98	18	353	750
London .....	95	18	629	1303
Germany .....	92	18	674	3015
Boston .....	92	18	297	564
New York (state).....	86	18	594	1090
Paris .....	86	18	516	1494
Italy .....	86	18	428	1140
Japan .....	86	18	267	902
Great Britain .....	83	18	400	1539
Europe .....	81	18	837	1995
United States .....	81	18	659	1725
Rome .....	81	18	202	604
California .....	81	18	193	269
Russia .....	78	18	362	1730
Ireland .....	78	18	288	674
Spain .....	78	18	279	649
Greece .....	78	18	264	761
Washington, D. C. ....	75	18	457	899
Chicago .....	75	18	350	618
Indians (American) .....	75	18	240	814
Africa (incl. North & South Africa, etc.)	75	18	216	441
Roosevelt, Theo. ....	74	18	257	617
Congress .....	72	18	255	632
Scotch, Scotland .....	72	18	216	337
Canada.....	72	18	216	199
Philadelphia .....	72	18	213	354
Lincoln, Abraham .....	72	18	142	160
Harvard .....	70	18	137	236
Switzerland .....	69	18	124	176
Atlantic .....	66	18	172	193
Holland .....	66	18	169	460

Wilson, Woodrow .....	65	18	380	789
India .....	63	18	151	255
Egypt .....	63	18	130	286
Hudson River.....	63	18	124	121
Jew; Jewish .....	63	18	109	460
Australia . . . . .	63	18	103	174
New England .....	63	17	178	247
Taft, Pres. ....	62	15	170	411
Poland . . . . .	61	18	175	281
Berlin . . . . .	61	18	133	219
San Francisco .....	61	18	121	165
Washington, George .....	61	18	109	216
Civil War .....	61	16	148	162
Austria (incl. Austria-Hungary).....	59	18	193	429
Maine . . . . .	59	18	80	86

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|----|----------------------|-----------------------|-----------------------|
| 56 | Pennsylvania         | Liverpool             | Bulgaria              |
|    | Virginia             | Shaw, George          | Root, Elihu           |
|    | Hungary              | Bernard               | Flanders              |
|    | Pittsburgh           | Mississippi River     | 33 Mexico             |
|    | New Jersey           | 41 Princeton Univ.    | Balkan states         |
|    | Kipling, Rudyard     | Cacsar, Julius        | Denver, Colo.         |
|    | Christians (incl.    | Servia                | Georgia               |
|    | Christianity)        | 40 Kansas City, Mo.   | Orient; Oriental      |
| 54 | Vienna               | Hughes, Charles       | Jefferson, Thomas     |
| 53 | St. Louis            | Evans                 | Twain, Mark           |
|    | Turkey               | Fifth Ave.            | Moscow                |
|    | Brooklyn             | 39 Republican Party   | Norway                |
|    | Oxford               | Democrat; Demo-       | 32 Gladstone, Wm. E.  |
|    | Sweden               | cratic Party          | Louisville, Ky.       |
|    | President; Presi-    | Roumania              | Milton, John          |
|    | dency (U. S.)        | Buffalo, N. Y.        | Asquith, Herbert      |
|    | Catholic (Inc. Roman | North Carolina        | Monroe Doctrine       |
|    | Church)              | Maryland              | 31 South, The (U. S.) |
|    | Indiana              | Emerson Ralph         | Florence              |
|    | Florida              | Waldo                 | Manhattan             |
| 50 | Christ (Inc. Jesus)  | Victoria, Queen       | Antwerp               |
|    | Napoleon I           | Arizona               | Tolstoy               |
|    | Pacific              | Michigan (state)      | Kitchener             |
|    | Persia               | 38 Browning, Robert   | Shanghai              |
|    | Yale Univ.           | Carnegie, Andrew      | Bismark               |
|    | Massachusetts        | 37 Grant, U. S.       | 30 Portugal           |
|    | South America        | New Haven             | Nile River            |
| 49 | Belgium              | 36 Asia               | Siberia               |
|    | Baltimore, Maryland  | Dickens, Charles      | French Revolution     |
| 47 | Bryan, W. J.         | Denmark               | Syria                 |
|    | Shakespeare          | Albany                | Presbyterian          |
|    | Connecticut          | Los Angeles           | Alps                  |
|    | Anglo-Saxon          | Palestine (incl. Holy | Louisiana             |
|    | Prussia              | Land)                 | Mohammedan            |
|    | Illinois             | Mediterranean         | Lowell, James R.      |
|    | Missouri             | Morgan, John          | Colorado (state)      |
|    | Venice               | Pierpont              | Morocco               |
|    | Texas                | Elizabeth, Queen of   | Hague, The            |
|    | Ohio                 | England               | Wordsworth, W.        |
|    | Parliament           | South Carolina        | Mississippi (state)   |
|    | Columbia Univ.       | Oregon                | Rhine River           |
| 46 | Lloyd-George, David  | Wisconsin             | Minneapolis           |
|    | Wall Street          | New Orleans           | Philippines           |
| 45 | White House          | Athens                | Cuba                  |
| 44 | Kentucky             | 29 Amsterdam          | Beethoven             |
|    | Scandinavia          | Minnesota             | Supreme Court         |
|    | Methodist Church     | Rocky Mountains       | (U. S.)               |
|    | Puritans             | 35 Broadway, N. Y.    | Slavs                 |
|    | Kansas               | Cleveland, Grover     | Copenhagen            |
| 43 | Wilhelm II, Kaiser   | Milwaukee             | Rochester, N. Y.      |
| 42 | Petrograd (incl. St. | Carlyle, Thomas       | Hugo, Victor          |
|    | Petersburg)          | 34 Alsace-Lorraine    | Stevenson, R. L.      |
|    | Detroit              | Rockefeller, J. D.    | 28 West, The (U. S.)  |
|    | Arabia               | McKinley, William     |                       |

- |                    |    |                     |                      |
|--------------------|----|---------------------|----------------------|
| Wagner, Richard    | 24 | Long Island         | Missouri River       |
| Teutons            |    | Newport, R. I.      | Madrid               |
| Latin              |    | Arnold, Matthew     | Asia Minor           |
| New Zealand        |    | Goethe, Wolfgang    | Shelley              |
| Red Cross          |    | Dante               | Balfour              |
| Thackeray, W. M.   |    | Bavaria             | Trenton              |
| Lodge, H. C.       |    | Socialism           | Byron                |
| Armenia            |    | Charleston, S. Car. | Declaration of In-   |
| Boer               |    | Edinburgh           | dependence           |
| Babylon            |    | Hamburg             | Cincinnati           |
| Franklin, B.       |    | Alabama             | Chicago, University  |
| Toronto            |    | Whistler, James     | of                   |
| 27                 |    | McNeil              | Bohemia              |
| Cleveland, O.      |    | Baltic              | Eliot, Charles W.    |
| Naples             |    | Chopin              | Seattle              |
| Brazil             |    | Leipzig             | La Fayette           |
| Latin              |    | Atlanta, Ga.        | Marne                |
| New Mexico         |    | Gettysburg          | Montenegro           |
| Vermont            |    | Cologne             | Quebec               |
| Edward VII         |    | North America       | Panama Canal         |
| Tennyson           |    | Constantinople      | Manila               |
| Louis XIV          |    | "Allies", The       | Danube               |
| Finland            |    | Daniels, J.         | World War            |
| Cambridge, Mass.   |    | 23                  | Bolshevik            |
| Indianapolis       |    | Versailles          | 21                   |
| Alaska             |    | Havana              | Plato                |
| Brussels           |    | Jerusalem           | Disraeli             |
| Peru               |    | Whitman, W.         | Joan of Arc          |
| Thames River       |    | Middle Ages         | Franco-Prussian War  |
| Tokio              |    | Waterloo            | La Follette, R. M.   |
| Van Dyke, Henry    |    | Louis XV            | Lee, Robert E.       |
| Montreal           |    | Revolution (U. S.)  | Strauss, Richard     |
| Iowa               |    | Westminster         | Charles II (England) |
| Tennessee          |    | Edison, T.          | Duluth               |
| Wyoming            |    | Cornell             | Grey, Sir Edward     |
| Rhode Island       |    | Maeterlinck         | Des Moines, I.       |
| 26                 |    | Manchuria           | Providence, R. I.    |
| Omaha              |    | Potomac River       | Bagdad               |
| Richmond, Va.      |    | Dresden             | 20                   |
| Hindu              |    | Venezuela           | Homer                |
| Wales              |    | Wells, H. G.        | Gothic (architect-   |
| James, Henry (nov- |    | Manchester, England | ure)                 |
| elist)             |    | Reichstag           | Hawaii               |
| Gibraltar          |    | McAdoo, W. G.       | British Columbia     |
| Springfield, Ill.  |    | Caucasus            | Warsaw               |
| Nicholas II        |    | 22                  | Portland, Ore.       |
| 25                 |    | East, The (U. S.)   | Galicia              |
| Scott, Sir Walter  |    | North, The (U. S.)  | Quaker               |
| Darwin, Charles    |    | Renaissance         | Meredith, G.         |
| Longfellow, Henry  |    | Glasgow             | Spanish-American     |
| Wadsworth          |    | Hawthorne, N.       | War                  |
| Milan              |    | Algeria             | West Indies          |
| Munich             |    | Panama              | Albania              |
| Cambridge, England |    | Utah                | Memphis, Tenn.       |
| Howells, William   |    | West Point          | Buenos Aires         |
| Dean               |    | Nevada              | Picadilly            |
| Macedonia          |    |                     |                      |

- |  |  |  |
|--|--|--|
| <p>Spencer, H.<br/>         Tariff<br/>         Hartford, Conn.<br/>         Senate, U. S.<br/>         George V (England)<br/>         Pershing<br/>         19 Baptist<br/>         "Middle West"<br/>         (U. S.)<br/>         Buskin, J.<br/>         Gompers, Samuel<br/>         Aristotle<br/>         Arctic<br/>         Lamb, Charles<br/>         Porto Rico<br/>         St. Paul, Minn.<br/>         Episcopal<br/>         House of Commons<br/>         Washington (state)<br/>         Clemenceau<br/>         Tammany<br/>         Voltaire<br/>         Rembrandt<br/>         Winnipeg<br/>         Syracuse, N. Y.<br/>         Balsac<br/>         Dewey, George<br/>         New Hampshire<br/>         West Virginia<br/>         Niagara<br/>         Addams, Jane<br/>         Verdun<br/>         Argentina<br/>         Czechs<br/>         Ypres<br/>         Honolulu<br/>         Hoover<br/>         League of Nations<br/>         18 House of Representatives<br/>         Mesopotamia<br/>         Irving, Washington<br/>         Vergil<br/>         Keats<br/>         Congo (region, river,<br/>         etc.)<br/>         David (Bible)<br/>         Tibet<br/>         Stockholm<br/>         Cannon, Joseph G.<br/>         Zola<br/>         Harriman, Edward H.<br/>         Schumann, Robert<br/>         San Diego, Cal.</p> | <p>Budapest<br/>         Carranza<br/>         Baker, Newton D.<br/>         Foch<br/>         Hindenberg<br/>         17 Cairo, Egypt<br/>         Atlantic City<br/>         Standard Oil Company<br/>         Sherman Anti-Trust Law<br/>         Vancouver<br/>         Dublin<br/>         Columbus, Ohio<br/>         Russo-Japanese War<br/>         Y. M. C. A.<br/>         Meuse<br/>         Brahms, Johannes<br/>         Ward, Mrs. H.<br/>         Macaulay, T. B.<br/>         Montana<br/>         Socrates<br/>         Buddha<br/>         Oklahoma<br/>         Johnson, Hiram<br/>         Interstate Commerce Commission<br/>         Ibsen<br/>         Hohenzollern<br/>         Louvain<br/>         Sparta<br/>         George III<br/>         Arkansas<br/>         Hudson Bay<br/>         Peoria<br/>         Toledo, Ohio<br/>         Constitution of U. S.<br/>         Cape Town<br/>         Suez<br/>         Calais<br/>         Pekin<br/>         Calcutta<br/>         "Eliot, George"<br/>         Bach<br/>         Mexico City<br/>         Salonika<br/>         Nebraska<br/>         Dardanelles<br/>         Adriatic Sea<br/>         Villa, Francisco<br/>         Black Sea<br/>         Lithuania<br/>         Johnson, Samuel<br/>         Solomon (King)</p> | <p>Roberts, Lord<br/>         English Channel<br/>         Columbus, Christopher<br/>         Poincare, Raymond<br/>         Nashville, Tenn.<br/>         Poe, Edgar Allen<br/>         Bryce, James<br/>         Plymouth, Mass.<br/>         Hamilton, Alexander<br/>         Geneva, Switzerland<br/>         Newark, N. J.<br/>         Korea<br/>         Rousseau, Jean<br/>         Jacques<br/>         Mozart<br/>         Ottawa, Canada<br/>         Jamaica<br/>         Annapolis<br/>         Salt Lake City, Utah<br/>         Kaiser (not specific)<br/>         Bengal<br/>         Mendelssohn<br/>         Central Park<br/>         Cromwell, Oliver<br/>         Rotterdam<br/>         Bronx<br/>         Gallic<br/>         Jackson, Andrew<br/>         Adirondacks<br/>         Vladivostok<br/>         American Federation of Labor<br/>         Liszt<br/>         Havre<br/>         Rio Grande<br/>         Victorian Age<br/>         Chaucer<br/>         Tunis<br/>         Churchill, Winston<br/>         (English)<br/>         I. W. W.<br/>         15 West (meaning Occident)<br/>         D'Annunzio<br/>         Confederacy<br/>         Fourth of July<br/>         Holmes, Oliver<br/>         Wendell<br/>         Hardy, Thomas<br/>         Michael Angelo<br/>         Luxemburg<br/>         Belfast, Ireland<br/>         Luther, Martin</p> |
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Yokohama  
Cossacks  
Marseilles  
Nietzsche  
John Hopkins University  
Cape Cod  
Tschaikowsky  
Birmingham, Ala.  
Vassar College  
Webster, Daniel  
Wood, Leonard  
Grand Rapids, Mich.  
Madison, Wis.  
Metropolitan Opera  
Duma (Russian)  
Zurich, Switzerland  
East Indies  
South Seas  
Hearst, William  
Randolph  
Illinois, University of  
Euphrates  
Bukharest  
Paul (Apostle)  
Clark, Champ  
Franz Joseph (Emperor)  
Cicero  
Lusitania  
Ontario (Province)  
Galsworthy, John  
Constantine  
Bennett, Arnold  
Huerta  
Lenine  
14 Yankee  
Continent (Europe) 13  
Barrie, James  
Wellington, Duke of  
Newfoundland  
Curzon, Lord  
Raleigh, Walter  
Cleopatra  
Tyrol  
Greeley, Horace  
Pilgrims (American)  
Saratoga, New York  
Alexander the Great  
Idaho  
Harrison, Benjamin  
Vesuvius  
Genoa

Titian  
Rubens, Peter Paul  
Pompeii  
France, Anatole  
District of Columbia  
Ukraine  
San Antonio  
Davis, Richard  
Harding  
Hapsburg, House of  
Palm Beach, Fla.  
Nova Scotia  
Gibbon, Edward  
Huxley, Thomas  
Frankfort, Germany  
Vatican  
Damascus  
Krupp  
Warwick (county, castle)  
Christiania (Norway)  
Andes  
Chile  
James, William  
Caribbean Sea  
Wisconsin, University of  
Congregational  
Rheims  
Magyar  
Ulster  
Galveston, Texas  
Bonar-Law, Andrew  
North Dakota  
Soviet  
Trotsky, Leon  
Liberty Loans  
Joffre  
Velasquez  
Capitol (at Washington, D. C.)  
York, England (county; city)  
Marx, Karl  
Southampton  
Schiller  
Dayton, Ohio  
Anne, Queen (England)  
Moslems; Moslem  
Frederick the Great  
Portland, Maine  
"Far East" (Eastern Asia)

Savannah  
Agriculture, U. S. Dept. of  
Marconi  
Saxons (meaning English)  
Yellowstone National Park  
Omar Khayyam  
Union (U. S., or North, in Civil War)  
Swinburne, Algernon Charles  
Louvre, The  
Davis, Jefferson  
Ottoman (empire, etc.)  
Bombay, India  
Belasco, David  
"Near East"  
Wellesley College  
Aegean (sea, islands, etc.)  
Harrisburgh, Pa.  
Garfield, James A.  
Armour (incl. Armour & Co., J. Ogden Armour)  
Bernhardt, Sarah  
Bacon, Francis  
Hong Kong  
Durer, Albrecht  
War Department, U. S.  
Vinci, Leonardo da  
Notre Dame Univ.  
"O. Henry" (Sidney Porter)  
Trieste  
Metropolitan Museum  
Dartmouth College  
Mohammed  
Bolivia  
Celts; Celtic  
Molière  
Henry VIII (England)  
Labor, U. S. Dept. of  
Greenwich Village (N. Y. city)  
California, University of

- Bordeaux  
 Bosnia  
 Berne  
 Lansing, Robert  
 Federal Reserve  
 (bank; Board;  
 Law)  
 Ford, Henry  
 Somme  
 12 "The East" (the  
 Orient)  
 Thoreau  
 Salisbury, Lord  
 Gaul; Gauls  
 Eton (school)  
 Windsor (England)  
 Highlands; High-  
 landers  
 Doyle, Arthur Conan  
 Tarkington, Booth  
 Burke, Edmund  
 Phillips, Wendell  
 Huguenots  
 Moors  
 Chase, Salmon P.  
 Birmingham,  
 England  
 Pennsylvania, Uni-  
 versity of  
 Landis, Judge  
 Kenesaw Mt.  
 Huns (chiefly mean-  
 ing Germans)  
 Mecca  
 Transvaal  
 Coleridge, Samuel  
 Taylor  
 Rio de Janeiro  
 Moses (Bible)  
 Byzantium  
 Millet, Jean Francois  
 Sudan  
 Vanderlip, Frank A.  
 Norfolk, Va.  
 Botticelli  
 Mobile, Ala.  
 Chattanooga  
 Bremen, Germany  
 Borah, Senator  
 Gary, Ind.  
 Evanston, Ill.  
 Hill, James J.  
 Worcester, Mass.
- Charlemagne;  
 Charles the Great  
 Waldorf-Astoria  
 Concord, Mass.  
 (incl. battle)  
 Appomatox, Va.  
 Carthage  
 Latin America  
 Debussy, Claude  
 Chesterton, Gilbert K.  
 Churchill, Winston  
 (Amer.)  
 Houston, Texas  
 Trafalgar  
 Händel  
 Düsseldorf  
 Diaz, P.  
 Melbourne  
 Sydney, Australia  
 Chambers, Robert W.  
 Entente, The  
 Michigan, Univer-  
 sity of  
 Horace  
 Vera Cruz  
 Shantung  
 Leland Stanford Jr.  
 University  
 Tripoli  
 Progressive Party  
 Jugo-Slavs; Jugo-  
 Slavia  
 Kerensky  
 11 Protestant  
 Howe, Julia Ward  
 Delaware  
 London, Jack  
 Christmas  
 Pope, Alexander  
 Boulogne  
 Newton, Isaac  
 James I (England)  
 Ohio River  
 Devonshire  
 Pitt, William  
 Hoboken  
 Colonial period  
 (American)  
 Austen, Jane  
 South Dakota  
 Jersey City  
 Marathon (race)  
 Penn, William  
 Alexandria, Egypt
- Crusades  
 El Paso, Texas  
 Verdi  
 Normans  
 St. Helena  
 Central America  
 Hay, John  
 Utica, N. Y.  
 Scranton, Pa.  
 Fall River, Mass.  
 Sicily  
 Kent, England  
 Cortez  
 Sioux City, Iowa  
 Santa Domingo  
 Riviera  
 Philistines  
 Halifax  
 Strassburg  
 St. Joseph, Mo.  
 Bridgeport, Conn.  
 Pasadena, California  
 Oyster Bay  
 Hampton Roads, Va.  
 Burns, Robert  
 Maupassant, Guy de  
 Charles I (England)  
 Schwab, Charles M.  
 Mary (Present  
 Queen of England)  
 Hague Peace Con-  
 ferences  
 Beecher, Henry  
 Ward  
 Labrador  
 Prague  
 British Isles  
 Topeka  
 Medici, The (in  
 general)  
 Liberal Party  
 (England)  
 East Side (New  
 York City)  
 Amazon River  
 Indian Ocean  
 Payne-Aldrich Tariff  
 North sea  
 Kiel  
 Liberty, Statue of  
 Monte Carlo  
 Jericho  
 Heidelberg  
 Northcliffe, Lord

- Argonne  
 Underwood, Oscar  
 Gallipoli  
 Albert, King of  
     Belgium  
 Count von Bernstorff  
 Lutheran Church  
 10 "Old World"  
 Sing Sing  
 Coney Island  
 Pharaoh  
 Sorbonne (Univ.)  
 Kalamazoo  
 Mirabeau  
 Afghan  
 Wilde, Oscar  
 Ade, George  
 Sherman, Wm. T.  
 Marie Antoinette  
 Eskimo  
 Sahara  
 Rothschild (family;  
     banking house)  
 Plutarch  
 Harte, Bret  
 Aberdeen, Scotland  
 Joliet, Ill.  
 Turner, J. M. W.  
 Troy (ancient)  
 Madison, James  
 Navy, U. S. Dept.  
     of the  
 Potsdam  
 Saxony  
 Sierra Nevada Mts.  
 Aurelius, Marcus  
 St. Paul's Cathedral  
     (London)  
 Chamberlain, Austin  
 Chesapeake Bay  
 Kant, Emanuel  
 Federal (U. S. gov-  
     ernment)  
 Swift (incl. Swift &  
     Co., Louis F.  
     Swift)  
 Haiti  
 Lexington, Ky.  
 Madison Square  
     Gardens  
 Nicaragua  
 Sargent, John S.  
 Salvation Army  
 Guatemala
- Boxer (rebellion)  
 Iceland  
 Singapore  
 McCormick, Cyrus H.  
 Romanoff Family  
 Eddy, Mary Baker  
 State, U. S. Dept. of 9  
 Chihuahua  
 Triple Alliance  
 Manitoba  
 Pennsylvania  
     Railroad  
 Mongolia; Mongols  
 Puget Sound  
 Wharton, Edith  
 Spokane  
 Mormons, Latter  
     Day Saints  
 Lancashire  
 Wesley, John  
 Fiume  
 Bethmann-Holweg,  
     von  
 Gary, Judge  
     Elbert H.  
 Dumas, Alexander  
 Lane, Franklin K.  
 Ritz-Carlton Hotel  
     (London)  
 Malay; Malaysia  
 Bulow, Prince von  
 Salem, Mass.  
 Napoleon III  
 New York Stock Ex-  
     change  
 Ecuador  
 Poughkeepsie  
 Chelsea, London  
 Persian Gulf  
 Hanna, Mark  
 Pinchot, Gifford  
 Sunday, Billy  
 Ithaca, N. Y.  
 Lisbon  
 Reed, Senator James  
     A.  
 Sothern, E. H.  
 Dalmatia  
 Sumner, Charles  
 Adams, John  
 Lorraine  
 Riverside Drive,  
     N. Y.  
 Tumulty, Joseph P.
- Masfield, John  
 Bristol, England  
 Brest, France  
 Carpathia; Car-  
     pathians  
 Harding, Warren G.  
 Chautauqua  
 Britain (ancient &  
     modern)  
 Springfield, Mass.  
 War of 1812  
 Smoot, Reed  
 Hewlett, Maurice  
 Treasury, U. S.  
 Pacific coast, U. S.  
 Goldsmith, Oliver  
 Champs Elysees  
 Vicksburg, Miss.  
 Uncle Sam, U. S.  
 Buckingham Palace  
 Jordan River  
 Brittany  
 Reynolds, Sir Joshua  
 Manchus  
 Henry IV (France)  
 Tudor  
 Conrad, Joseph  
 Flaubert  
 St. Augustine, Fla.  
 Himalayas  
 Dallas  
 Johnson, Andrew  
     (President)  
 Riga  
 Machiavelli  
 Mary, Queen of Scots  
 Assyria; Assyrians  
 Douglas, Stephen A.  
 Lexington (battle,  
     place)  
 Cairo, Ill.  
 Wales, Prince of  
 Dryden, John  
 British Museum  
 Calvin, John  
 Cape Colony  
 Daudet, Alphonse  
 Cabinet (U. S.  
     President's)  
 Anti-Saloon League  
 Knox, P. C.  
 Delaware River  
 Thirty Years' War  
 Bunker Hill

- Burroughs, John  
 Dover, England  
 Stratford on Avon  
 Whittier, John  
 Greenleaf  
 Sacramento, Calif.  
 Napoleonic Wars  
 Astor, John Jacob  
 Schubert, Franz  
 Santiago, Chili  
 Paderewski  
 Staten Island  
 Magna Charta  
 Stowe, Harriet  
 Beecher  
 Bowery (street,  
 N. Y.)  
 Luxembourg, Paris  
 (Palace, garden)  
 Saskatchewan  
 Barrymore, Ethel  
 Kenosha, Wis.  
 Aurora, Ill.  
 Haig, Douglas  
 (General; Field  
 Marshal)  
 Burnett, Mrs.  
 Frances Hodgson  
 Ellis Island  
 Cape of Good Hope  
 Silesia  
 William the Con-  
 queror  
 Tuileries (palace,  
 gardens)  
 Faversham, William  
 Kief, Russia  
 Northwestern Uni-  
 versity  
 Funston, Frederick  
 Alcott, Louisa May  
 Yukon  
 Corot  
 Cherbourg  
 Wright (Wilbur &  
 Orville, brothers)  
 Irving, Henry  
 Mac Dowell, Edward  
 Caruso  
 Crimean War  
 Sheridan, Phil  
 Racine, Wis.  
 Valparaiso, Chili  
 Parker, Gilbert
- Bermuda  
 Aldrich, Senator  
 Nelson W.  
 Lawrence, Mass.  
 French, Sir John  
 White, Stewart  
 Edward  
 Balkan War  
 Aisne  
 Burleson, Albert S.  
 Sinn Fein  
 Y. W. C. A.  
 Liège  
 Soissons  
 Bosphorus  
 Thompson, William  
 Hale  
 American Expedi-  
 tionary Forces  
 Peace Conference  
 Central Powers  
 (World War)  
 8 Lille  
 Mary (Virgin)  
 Abraham  
 Hudson, Henry  
 Canterbury, Arch-  
 bishop of  
 Pennell, Joseph  
 Francis I (King of  
 France)  
 Gaelic  
 Raphael  
 Washington Square  
 (N. Y. city)  
 New York Times  
 Boswell  
 Newport News, Va.  
 Ulysses  
 Seward, Wm. H.  
 Mt. Vernon (Wash-  
 ington Estate)  
 Bryn Mawr (college)  
 Aryan (race)  
 Gainsborough  
 Sphinx  
 Pullman (Car Co.)  
 Burbank, Luther  
 Tyndall  
 Debs, Eugene V.  
 Manet, Claude  
 Jesuit  
 Smith College  
 McClellan, George B.  
 (general)
- Alexandria (Queen  
 of England)  
 Kingsley, Charles  
 Zulu  
 Samoa  
 Gloucester, Mass.  
 Capri  
 Bunyan, John  
 "Reds"  
 Northwest, U. S.  
 Tangiers  
 Nobel Prizes  
 George, Henry  
 Alberta, Canada  
 Burma  
 Odessa  
 Noah  
 Lowden, Frank O.  
 Bethlehem (of  
 Judea)  
 Union Pacific Rail-  
 road  
 Juarez (Mex. City)  
 Marlowe, Julia  
 Victor Emmanuel III  
 Aldrich, Thomas  
 Bailey  
 Nelson, Horatio  
 Beach, Rex  
 Tacoma, Wash.  
 Archangel, Russia  
 Sophocles  
 San Juan (hill,  
 battle, etc.)  
 Richelieu  
 Whigs (American  
 Party)  
 Nazareth  
 Sioux (Indian tribe)  
 Lords, House of  
 Deneen, Charles S.  
 Decatur, Ill.  
 Normandy  
 Haydn (musician)  
 Clay, Henry  
 Tartar  
 Islam (Moham-  
 medanism)  
 Burton, Senator  
 Theodore  
 Sheffield, England  
 Tacitus  
 Rodin, Auguste



- Sherman, John  
 James River  
 Erie, Pa.  
 Drake, Sir Francis  
 Sudermann  
 Westphalia  
 Champagne, France  
 Corinth; Corinthian  
 McCormick, Medill  
 Amherst (college)  
 Hauptmann, G.  
 Louis XVI  
 Marshall, Thomas  
 Belgrade  
 Locke, William J.  
 Red Sea  
 Crimea  
 Kansas City, Kans.  
 Crete  
 Honduras  
 Slovak  
 Gerard, James W.  
 Peter (Apostle)  
 Cooper, James Feni-  
   more  
 Mitchel, John P.  
 Michigan, Lake  
 Fontainebleau  
 Cook County, Ill.  
 "Gulf" (Gulf of  
   Mexico)  
 Picardy  
 Dunkirk, France  
 John, (King of  
   England)  
 Key West  
 Berkeley, Calif.  
 Jackson, "Stone-  
   wall"  
 Noyes, Alfred  
 Goethals  
 Suffrage (Woman)  
 Smyrna  
 Seine River  
 Lorimer, William M.  
 Transylvania  
 Kreisler, Fritz  
 Moravia  
 Adams, John Quincy  
 Greenland  
 Sofia  
 Orlando (Premier of  
   Italy)  
 7 Unionists (England-  
   Ireland)
- Orleans (city)  
 Ku Klux Klan  
 Newman (Cardinal)  
 Cornwall  
 Alleghenies  
 Herod  
 New Year; New  
   Year's Day  
 Victoria, British  
   Columbia  
 Riley, James  
   Whitecomb  
 Kafir  
 Long Island Sound  
 Pyramids  
 Harlem (N. Y. city  
   borough)  
 Trinidad (island)  
 Rossetti, Dante  
   Gabriel  
 Tory (English)  
 Prohibition  
 Pater, Walter  
 Pyle, Howard  
 Whitehall  
 Port Arthur  
 Madras  
 Pyrenees  
 Vanderbilt (family)  
 Addison, Joseph  
 Canton, China  
 Bessarabia  
 Aesop  
 Alfred the Great  
 Bloomington, Ill.  
 Amiens  
 Castile  
 Brandeis, Judge  
   Louis D.  
 White Mountains  
 Strand, London  
 Wilmington, Dela-  
   ware  
 Punjab  
 Sheridan, Richard  
   Brinsley  
 Oakland, Calif.  
 Parthenon  
 Bourbon  
 Depew, Chauncey M.  
 Britons (ancient &  
   modern)  
 Seville, Spain  
 Herodotus  
 Taylor, Bayard
- Plymouth, England  
 Eugene (Empress)  
 Ozark Mountains  
 Yorktown (battle;  
   surrender)  
 Penrose, Boies  
 Bedouins  
 Rhodes, Cecil  
 Canary Islands  
 Galilee (Sea of  
   Galilee)  
 Delhi, India  
 Skinner, Otis  
 Rockford, Ill.  
 Provence, France  
 Queenstown, Ireland  
 Khartoum  
 Booth, Edwin (actor)  
 Barbados  
 Nantucket  
 Lewis, J. Hamilton  
 "West" (American,  
   Western Hemi-  
   sphere)  
 Lind, Jenny  
 Briand  
 Granada, Spain  
 North Pole  
 Occident  
 Hale, Edward  
   Everett  
 Gosse, Edmund  
 Connecticut River  
 Turgenev  
 Fleet Street, London  
 Leeds, England  
 Washington, Booker  
   T.  
 Alexander II  
   (Russia)  
 Valley Forge  
 Lemberg  
 Cummins, A. B.  
   (senator)  
 Central Europe  
 Brown University  
 Morley, John  
 Sardinia  
 Schurz, Karl  
 Stock, Frederick  
 Berger, Victor L.  
 Bowdoin College  
 Garibaldi  
 Manila Bay  
 Jamestown, Va.



- Vanderbilt, Cornelius  
 St. Lawrence (river)  
 Ghent, Belgium  
 Hyde Park, London  
 Butler, Nicholas  
     Murray  
 Farrar, Geraldine  
 Williams College  
 Lombardy  
 Arnold, Benedict  
 Jacob (Biblical)  
 Schenectady, N. Y.  
 Elgin, Ill.  
 Meade, George G.  
 Whitman (Gov. of  
     N. Y.)  
 Leavenworth, Fort  
 Panama-Pacific Ex-  
     position  
 Oberlin College  
 Galesburg, Ill.  
 Owen, Robert L.  
 Tarbell, Ida  
 Fielding, Henry  
 Ferdinand III (King  
     of Bulgaria)  
 Pasteur, Louis  
 Bell, Alexander  
     Graham  
 Beveridge, Albert J.  
 Tagore, Rabin-  
     dranath  
 East River (N. Y.  
     city)  
 Woolworth, F. W.  
 Colombia  
 Volga (river & dis-  
     trict)  
 Catt, Mrs. Carrie  
     Chapman  
 Vosges  
 Wister, Owen  
 Bastile  
 Grand Canyon  
 Gonzales (general)  
 St. Mihiel (battle &  
     place)  
 Canal Zone, Panama  
 Rouen  
 Blue Ridge Moun-  
     tains  
 Great Lakes Naval  
     Station  
 Kronstadt  
 Herzegovina
- Dneister (river)  
 Grand Central Sta-  
     tion, (N. Y.)  
 Coblenz  
 Smith, Francis Hop-  
     kinson  
 Garrison, Lindley M.  
 Crown Prince  
     (Wilhelm)  
 Versailles Peace  
     Treaty  
 Tirpitz, von  
 Costa Rica
- 6 Pennsylvania Ave.  
     (Washington, D.C.)  
 Choate, Joseph  
     Hodges  
 Colorado River  
 "New World"  
     (usually America)  
 Easter  
 Pensacola, Fla.  
 Van Dyck, Anton  
 Alfonso XIII (pres-  
     ent king of Spain)  
 Yangtze Kiang  
 Kimberley  
 New York Central  
     Railroad  
 Pliny  
 Zion, Zionism (etc.)  
 Yeats, Wm. Butler  
 Montaigne  
 Pan-American (Fed-  
     eration, Congress  
     etc.)  
 Hankow, China  
 Edward I (King of  
     England)  
 Chinatown, (N. Y.  
     city)  
 Cork, Ireland  
 Garrick, David  
 New South Wales  
 Iberian  
 Elba, Isle  
 Buchanan, James  
 Continental Congress  
     (American)  
 Fremont (Gen. J.O.)  
 Erie, Lake  
 Ann Arbor, Mich.  
 South Bend, Ind.  
 Gould, Jay  
 Borneo
- Latin Quarter, Paris  
 Shubert, Lee (The-  
     atrical Manage-  
     ment)  
 Provincetown, Mass.  
 Brown, John  
 Sultan, Turkey  
 Jacksonville, Fla.  
 Monroe, James  
 Montgomery, Ala.  
 Sonora, Mexico  
 Bering Sea  
 Wichita, Kans.  
 Mill, John Stuart  
 Highland Park, Ill.  
 Champaign, Ill.  
 Keller, Helen  
 Wurtemberg  
 Archimedes  
 Nuremberg  
 Confucius  
 Natal  
 Zangwill, Israel  
 Lynn, Mass.  
 Ceylon  
 Camden, N. J.  
 Great Northern Rail-  
     way  
 New Brunswick,  
     Canada  
 Illinois Central Ry.  
 Stanton, Edward M.  
 Justice (Dept. of  
     U. S.)  
 Turkestan  
 Morris, Gouverneur  
 Schleswig (incl.  
     Schleswig-Holstein)  
 Farragut (Admiral)  
 Iroquois  
 Sullivan, Roger C.  
 Hayward, William  
 East Africa, (incl.  
     British, German)  
 Pericles  
 Quincy, Ill.  
 Fargo, N. D.  
 Concord, N. H.  
 Greenwich, England  
 Cohan, George M.  
 Beauregard (Gen-  
     eral)  
 "George Sand"  
 Locke, John  
 Norsemen

Ural (mts., district, etc.)  
 Renan, Ernest  
 Brontes (Charlotte, Emily & family)  
 Oppenheim, E. Phillips  
 Russell Sage Foundation  
 Tigris  
 Covent Garden  
 Butte, Mont.  
 Custer, General George A.  
 1848 German Revolutionary Movement  
 Interior Department of the U. S.  
 Commerce, U. S. Dept. of  
 Trollope, Anthony  
 Page, Thomas Nelson  
 Armada (Spanish)  
 Björnson, Björn-stjerne  
 Grenfell, Dr. Wilfred  
 Jones, John Paul  
 Judea  
 Robespierre  
 Washington, University of  
 Abyssinia  
 Field, Marshall  
 Troy, N. Y.  
 Ionia; Ionic  
 Miami, Florida  
 Peter the Great  
 Pizarro  
 Madeira (island)  
 Brest-Litovsk  
 Peary, Robert E.  
 Blaine, James G.  
 Mars (planet)  
 Turin, Italy  
 Abbott, Dr. Lyman  
 Adrianople

Marshall, John (Chief Justice)  
 Fort Worth, Texas  
 Reno, Nevada  
 Jaffa (Joppa)  
 Parrish, Maxfield  
 Acropolis  
 St. Gaudens, A.  
 Palisades (Hudson River)  
 Froebel  
 Bar Harbor, Maine  
 Dunne (Governor & Mayor)  
 Waukegan, Ill.  
 McCutcheon, George Barr  
 Burgundy  
 Dobrudja  
 Gibson, Charles Dana  
 Agassiz  
 Herrick, Robert  
 Colorado Springs, Colo.  
 Marlowe, Christopher  
 Pascal  
 Gethsemane  
 Phoenicia  
 Burr, Aaron  
 Pierce, Franklin (President)  
 Civil Service  
 Evansville, Ind.  
 George IV (King of Great Britain)  
 Santa Fe, N. Mex.  
 Kenyon, William S.  
 Lake Forest, Ill.  
 Carson, Sir Edward  
 Creole  
 Garden, Mary  
 Gilbert, W. S. (composer)  
 Mayflower  
 Cyrus (King Cyrus the Great)  
 Uruguay

Hannibal (Carthaginian general)  
 Henry, Patrick  
 Irish Sea  
 Smith, Captain John  
 Hitchcock, Gilbert M.  
 Bank of England  
 Massanet, Jules  
 Lodge, Sir Oliver  
 Aztecs  
 Lenroot, Irving  
 Verona; Veronese  
 Burke, Billie  
 Catskill (mts.)  
 Java  
 Art Institute (Chicago)  
 Metz  
 Bergson, H.  
 Mackinac  
 Shaw, Dr. Anna Howard  
 Brooks, Phillips  
 Bethlehem, Pa.  
 Monet (artist)  
 Rachmaninoff  
 Rubenstein, Anton  
 Berkshires  
 Oshkosh  
 Dewey, John  
 Pankhurst, Mrs.  
 Thrace  
 Tuscany  
 Rostand, Edmund  
 Madero, Francisco  
 Cecil, Lord Robert  
 Pickford, Mary  
 Cavell, Edith  
 Lansing, Michigan  
 House (Colonel)  
 Coolidge, Calvin  
 Chateau Thierry  
 Croatia  
 Wickersham, George W.  
 Crowder (General)  
 Galli Curci  
 Trentino

## CHAPTER XIV

### THE APPLICATION OF METHODS OF RESEARCH TO MAKING THE COURSE OF STUDY IN HISTORY

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There is, perhaps, no subject in the curriculum whose value and content have been the subjects of so much dispute as history. The more important of the problems in controversy may be stated as follows:

- I. Is the sum total of the various values of history sufficient to justify its present place in the course of study?
- II. What are the most important uses which are made of history in life outside the school?
- III. What organization of history is most efficient:
  1. In relation to its main functions in life outside the school?
  2. From the standpoint of teaching?
- IV. What subject matter in history is most important for the development of proper knowledges, proper abilities, and proper attitudes in relation to the solution of modern problems?
  1. What are the problems?
  2. What items contribute most to the solution of these problems?
- V. How should history be graded?
- VI. What are the most efficient methods of teaching history?
- VII. What are the best tests for measuring the degree to which the purposes as set out in the course of study have been accomplished?

The attempts to solve the last three problems, those of grading, methods of teaching, and methods of testing, cannot be treated in

the space available for this chapter. It should be pointed out, however, that in the main the solution of these problems must wait until we have answered the questions relating to the selection and organization of the subject matter which is to make up the course of study.

The investigations of these several problems vary in quantity and in quality. It is the purpose of this chapter to review the various research techniques which have been proposed or used in their solution and to evaluate the resulting data. The investigations reviewed are representative rather than inclusive. They are meant to illustrate the methods used up to the time of the present *Yearbook*, but not to include the articles herein printed.

I. IS THE SUM TOTAL OF THE VALUES OF HISTORY SUFFICIENT TO JUSTIFY ITS PRESENT PLACE IN THE COURSE OF STUDY? SHOULD THE EMPHASIS ON HISTORY BE INCREASED OR DIMINISHED?

The commonest method of attacking this problem has been to collect the opinions of supposedly competent judges. Such attempts have not been very satisfactory. In the first place, the opinions are not in agreement. In the second place, the basis of judgment is not always the same. While this method, up to the present time, has not given very valuable results, there is reason to believe that a refinement of it would lead to results of some significance.

Two other procedures have been used by the writer: (1) a study of library withdrawals; (2) the analysis of books published in a given period. For the first, the records of the central and branch libraries of New York City were used. These records are available for several years, so that it is possible to avoid any likelihood of undue warping of the reading habits due to unusual conditions, such as the late war. After a cursory examination of the reports for various years, the year before the war was chosen for intensive study since it seemed free from unusual influences which might increase or decrease the amount of history normally read.

It was discovered that one book in every seven consulted in the reference division of the New York City Library was a history. This is more than were consulted in geography, travel, all the

sciences, and all technologies combined. Eight percent of the books drawn for home use were classed as history or biography, as compared with three percent technology, three percent in science, and three percent in geography and travel combined. It is of course possible that the assignments which teachers in the public schools and colleges make to historical books raise this percentage. On the other hand, an analysis of books drawn under vacation privileges, while showing an increase in fiction, does not show that history, as compared with other non-fiction classifications, suffers a falling off.

It must also be kept in mind that many books classified under other headings contain a great deal of history. Some of them are almost wholly historical in both content and in point of view. It may be significant, too, for the purposes of this discussion, that the percentage of books in history drawn by children is still larger as compared with the percentage in science, useful arts, geography, and travel.

A similar method was used by Jordan in his investigation of "Children's Interests in Reading." His tables show that, while the withdrawals in history are few as compared with those in fiction, they are numerous as compared to other non-fiction classifications.

This method is somewhat crude and inaccurate because of deficiencies in the conventional method of library classification. A tabulation of the actual titles of books withdrawn and an analysis of each book would probably give significant data on (a) the amount of history read, (b) the type of history read. These data, supplemented by a tabulation of questions asked by readers at the librarian's desk, would certainly help to show how great the demand is for history.

The study of publishers' lists was undertaken on the assumption that a publisher does not continue to publish a kind of book for which there is no demand. He has a constant check of a substantial sort upon his judgments as to how the reading tastes of the public are distributed. The following data were secured from the summary given in *The World Almanac* for 1915. The data are for the books published in 1913. It must be kept in mind, of course, that these figures are for titles, not for copies. This summary pro-



vides a basis for comparison with the data secured from library withdrawals during the same year. In 1913 there were published in America 12,230 books distributed as follows:

1. Biography and history.....	1,219
2. Fiction .....	1,156
3. Sociology and economics.....	977
4. Theology and religion.....	944
5. Science .....	790
6. Applied science, technology, engineering.....	781
7. Literature, essays .....	733
8. Law .....	692
9. Poetry and drama.....	679
10. Juvenile books .....	622
11. Medicine and hygiene.....	600
12. Description, geography, and travel.....	558
13. Agriculture .....	490
14. Philology .....	335
15. Education .....	324
16. Philosophy .....	324
17. Fine Arts .....	264
18. Business .....	221
19. Games, sports, and amusements.....	194
20. General encyclopedias, general works—bibliographies, miscellaneous .....	152
21. Domestic Economy .....	145
22. Music .....	111

It will be seen by the table that approximately one book in every ten published in 1913 may be classified as history or biography, as compared to less than one in twenty that fall under geography and travel; one in ninety under domestic economy; one in sixty under business; one in fifteen under science and engineering; and one in twenty-five under agriculture. In the summary of the last *World Almanac*, the number of books on history and biography is shown to be considerably higher than those of other classifications.

Nor is this distribution peculiar to America. Notice the following distributions in England, Germany, and France:

#### IN ENGLAND:

History and biography.....	1066
Geography and travel.....	793

Science . . . . .	732
Technology . . . . .	699
Agriculture, gardening . . . . .	248

IN GERMANY (1912):

Natural Sciences, and Mathematics . . . . .	1852
History . . . . .	1542
Geography . . . . .	1418

IN FRANCE:

History . . . . .	1253
Science . . . . .	549
Geography and travel . . . . .	428

The data from publishers' lists are probably not so significant as those based on library withdrawals. In order to use these lists as actual measures of the social demand for history, the size of the editions for each book would have to be known. The fact that a book is published does not give a complete measure of the number of people who read it. Publishers occasionally err in their judgment of the market. Moreover, some books are read by only one person, if at all. Other books are re-read and passed around to friends. In spite of these deficiencies, valuable data could be obtained from a detailed analysis of one book of each edition published during a given period. Dr. Rugg's study of historical material in the best books dealing with modern problems also helps to answer this question.

The data from the publishers' market reinforce those secured from the study of library withdrawals. If these measures were to be taken at face value as an index of the social demand for history, one would have to conclude that there is a very great injustice done to history in the elementary school, since the amount of time given to it is but from four to five percent of the entire school time.

It may be urged, of course, that, while the data from libraries and publishers' lists show the amount of history that people actually read, they do not show the amount which they should read. It may be pointed out that from similar reasoning one could conclude that the second largest emphasis in the course of study should be upon the study of fiction. In other words, some may urge that

the reading of so much history is a form of depravity approaching that manifested by the popular novel fiend. To get more evidence on this point a few librarians and the managing editors of some of our largest publishing houses were asked to give their estimates of the type of individual who reads history as compared with those who read other types of books. The answers were in agreement that in so far as the reader devoted to history represented a type, it was a type ranking relatively high in ability. In other words, the history-reading group was made up of our "best people."

It seems likely that with better techniques, the study of library withdrawals, publishers' lists, and the judgments of competent people would yield valuable information. Such data as are in existence would seem to indicate that history occupies a very large place in the reading of thoughtful people. It seems probable that this may be taken as one indication of its value.

## II. WHAT ARE THE MOST IMPORTANT USES WHICH ARE MADE OF HISTORY IN LIFE OUTSIDE THE SCHOOL?

An attempt to answer this question is made in the *Teachers College Record*, for September, 1915. A questionnaire to a limited number of individuals indicated that the two most important functions are (a) to contribute to leisure reading, and (b) to throw light on the solution of modern problems.

On the basis of frequency or universality of use in life the controlling principle of organization in history would be found in its dramatic quality. However, this is worthless as a principle of organization; and a course of study based on this principle would degenerate into a mere list of tales. Moreover, *frequency* of use is but one of the criteria by which one may determine the importance of instructional materials. The '*cruciality*' of a given use must also be taken into account. For this reason, many have urged that the present problems of social, economic, and political reconstruction are so pressing that we are justified in making their interpretation the basis upon which to select and organize the material of a course in history. This affords a definite criterion for rejecting and selecting subject matter and at the same time promises to secure most of the values which are legitimately claimed

for history instruction. At any rate, the tendency at present seems to be to accept the proposal that the materials in history be selected and organized to contribute in the fullest degree to the intelligent interpretation of the social life of the present and near future, to an appreciation of its values, and to the solution of its problems. Most of the other values, such as the gaining of vicarious experience, moral backing, patriotism, the prevention of provincialism, and an understanding of newspaper allusions, will be gotten, it is claimed, as by-products. This question should be studied further by the same general method used by the writer but with improvement in technique and in the quantity of data collected. Many of the bitterest controversies arise out of failures to agree as to what the function of history really is.

### III. WHAT ORGANIZATION OF HISTORY IS MOST EFFICIENT IN RELATION TO ITS MAIN FUNCTIONS IN LIFE OUTSIDE THE SCHOOL AND FROM THE STANDPOINT OF TEACHING?

It is very essential to distinguish between the problem of determining what facts are to be selected and the problem of deciding how these facts should be organized. We may agree, for example, that the history of the invention of the steam engine should be taught, but disagree as to whether it shall be taught as a part of the history of the period in which the invention was made, as a part of the history of the development of power machines, as a part of the history of the industrial revolution, or as a part of the present problem of conserving fuel and power. This problem could possibly be solved by building up complete organizations on each of the proposed bases and then studying the serviceable relation of each type of organization in interpretation of the more important modern problems.

There are also problems of organization which are of a pedagogical nature. For example:

- (1) Should history in the primary grades be organized around biographies?
- (2) Should it be organized in the elementary school to emphasize dramatic interests?
- (3) Should history be taught chronologically by periods, or should one aspect of the development of civilization be taken up at



a time? If it is taught by periods, should the emphasis be upon the social and economic phase of history, or upon the political?

- (4) Where history is organized around modern problems, should the movement be anticipatory or regressive? For example, should the steps in improving transportation be taken up chronologically, or should the modern problems of transportation be studied first before taking up the historical background?
- (5) Should history be limited to that which is gotten incidentally in connection with other subjects, such as civics, economics, or sociology?
- (6) What is the relation of history to geography and civics in the first six grades? To civics, sociology, and economics in the junior and senior high school?
- (7) Should all social sciences be combined into a general social science?
- (8) Should history be organized around projects?

Answers to all of these questions have been attempted in various schools in so far as rough trials under actual classroom conditions can be called attempted answers, but in no case, so far as the writer is aware, have these trials been sufficiently methodical and refined to call them "experiments." A possible exception is to be found in some of the experiments in correlation. When a school has tried a given organization, the various observers do not always agree as to the success of the experiment. We shall probably not be able to conduct satisfactory experiments to determine which organization is most efficient, either for the purposes of thinking in life or for the pedagogical purposes of the school, until we have determined which items of history are most important and have constructed tests which will measure in an accurate manner the degree to which, under a given organization, these items have been taught. Since, however, there is a wide acceptance of the proposal that history be selected to contribute to the fullest extent to the solution of modern problems, it is quite proper to proceed to discover what subject matter in history is most essential for this purpose. With the possible exception of the analysis of textbooks by Bagley and Rugg, all studies hereafter considered in this chapter were made from this point of view.



IV. WHAT SUBJECT MATTER IN HISTORY IS MOST IMPORTANT FOR THE DEVELOPMENT OF PROPER KNOWLEDGES, PROPER ABILITIES, AND PROPER ATTITUDES IN RELATION TO THE SOLUTION OF MODERN PROBLEMS?

This question must be divided into two parts: (1) What are the most important modern problems? (2) What items of history make the largest contribution to the solution of these problems?

1. What are the Important Modern Problems?

A number of investigators have attempted to answer this first question, and with varying techniques.

*Lists given in books and magazines.* The writer has analyzed and tabulated such lists of modern problems as are to be found in books and magazine articles. For example, such a list of social problems appears in Elwood's *Modern Social Problems*. This method does not yield much of value, because the writers are either not attempting to give a full and well-balanced list of modern problems, or are influenced unduly by special biases or interests. It does not seem worth while to carry such research further.

*The newspaper-magazine method.* One may make the assumption that important problems will find a place in our newspapers and magazines, and that the frequency of their occurrence and the space devoted to them give a reasonable approximation to their relative importance. This method is illustrated by a study which Prof. J. A. Sharon made of two weeks' issues of each of nine representative newspapers. His report of the most important problems as measured by the number of articles and the total amount of space devoted to them is as follows:

	No. of articles	Total length in linear inches
1. Taxation . . . . .	92	1,058.00
2. Foreign relations (not immigration) . . . .	30	701.75
3. Suffrage . . . . .	51	559.75
4. Monopoly and legislation . . . . .	45	551.75
5. Public service commissions . . . . .	37	450.50
6. Liquor and prohibition . . . . .	31	339.50
7. Money and banking . . . . .	14	186.00
8. Employers and labor . . . . .	7	102.50
9. Pensions (all kinds) . . . . .	7	88.00

10	Workmen's compensation .....	10	78.75
11.	Conservation of natural resources.....	3	42.00
12.	Child labor .....	1	2.80
13.	Miscellaneous . .....	50	760.75

This type of research should be continued for newspapers and extended to magazines. Such studies would show, at least, what problems are kept before the public through periodical literature. That, in itself, would be an important contribution. Of course, an appropriate technique would have to be devised for selecting pertinent material to be scored, and for tabulating and interpreting the data collected. The actual analysis of periodicals must be done by individuals adequately trained in the social sciences. The factors affecting the reliability of newspaper analyses are discussed later in this article.

*An analysis of political platforms.* A very interesting study of the permanence and relative importance of certain problems was made by Dr. B. B. Bassett. Assuming that the makers of platforms are competently sensitive to the problems of each period, he analyzed (1) "the platforms of all the political parties since 1832;" (2) "the state platforms in non-presidential years from 1889 to the present time;" (3) "all the state platforms of the major parties in one year (1910);" (4) "the platforms of the major parties in certain selected states, viz., California, Indiana, and New York since 1890;" (5) "all platforms of the parties in Iowa since 1889;" and (6) "the platforms of one southern state." His tables cannot be given here. For a more detailed report, the reader is referred to the *Seventeenth Yearbook, Part II*, of this Society, or to Dr. Bassett's doctor's thesis.

This is a most comprehensive and a most scholarly study. It attacks directly the problem of selecting major problems or topics. It gives, at least, the problems which have confronted the voters at the polls, and, while present and future conditions may change the relative place assigned to certain problems in his tables, it is unlikely that any of the major problems given will drop out of sight. In most cases, moreover, shifts in emphasis will be in the direction of tendencies already indicated in his tables. His study closed with 1916. It is desirable to bring his investigation to date,

and perhaps to compare his data with those obtained from a study of the platforms of the parties of other great nations.

*The judgments of representative citizens.* We have long needed a study of the sensitiveness of the general public to civic instruction. Such a study was begun at Iowa State Teachers College and is now being completed as a master's thesis by Walter D. Cocking at the University of Iowa. Mr. Cocking secured the co-operation of the following groups: 500 club women not engaged in business, or in professional work; the superintendent of schools of each of the 99 counties in the state of Iowa; 50 city officials so selected as to equalize proportional representation between large cities and small towns; 99 county officials, other than superintendents of schools; the president of the County Farm Bureau in each of the 99 counties; 100 city superintendents of schools; 150 teachers of civics in junior and senior high schools; 50 state officials; 100 representative members of the American Legion nominated for this work by the state adjutant; 100 clergymen, selected to represent the leading religious sects of the state; a miscellaneous group of 25 people selected from semi-public organizations not otherwise represented.

In addition, 50 representatives were chosen from each of the following businesses or professions:—bankers, lawyers, commercial travelers, common laborers, merchants, working women, and editors. These representatives were selected by the city superintendents in 50 Iowa towns. More home-makers were chosen than people from any other class, as that group is the largest of the ones that co-operated.

About two out of five of those selected handed in complete returns. This proportion was maintained fairly evenly throughout all of the classifications, so that the returns represent a sampling of all these various interests. The following problems were reported most frequently:

1. Relation to Others, or Community Life
2. Obedience to Law. Law Enforcement
3. Rights and Duty of Suffrage
4. Respect and Love for Flag and Country
5. Study of Constitution, Laws, and Courts
6. Rights and Obligations of Taxation

7. Health and Sanitation
8. Responsibility of the Individual
9. Value and Importance of Education
10. Responsibility, Rights, and Duties as a Citizen
11. Honesty
12. History of Our Government
13. Thrift
14. Cooperation
15. Reverence for God and Bible Study
16. Morals
17. Care of Public Property
18. The American Home and Home Life
19. Respect for Officials
20. The Immigrant Problem
21. Memorizing Patriotic Songs and Selections
22. Biographies of Great Men
23. Dignity of Labor
24. Courtesy
25. Public Office—A Public Trust
26. Community Organizations
27. Unselfishness, "Golden Rule"
28. Study of Local, County, State, and National Government
29. Current Events
30. Justice and Tolerance
31. Value and History of Political Parties
32. Sacrifice
33. One Language—the English Language
34. Jury Service
35. Elections
36. International Relations
37. Interdependence of Social Groups
38. Conservation of Resources
39. The Awfulness of War
40. Value of Worth-While Things
41. Care of Criminals
42. Safety First
43. Punctuality in Discharge of Duty
44. Roads

In spite of great care in the questionnaire, it will be seen that many of the replies are too general to be serviceable. Nevertheless, Mr. Cocking's results give the best picture we have had so far of the civic aspirations of the leading citizens in one commonwealth.

Mr. Cocking's detailed data and their interpretation should be exceedingly instructive.

*Analysis of problems discussed in books.* Another method, one which must be given very serious consideration, is that employed by Harold Rugg at the Lincoln School of Teachers College. He and his colleagues have determined the "big and insistent problems and issues" of contemporary life by tabulating the contents of outstanding books in the different fields. He secured his list of some 200 books by four methods: (1) by compiling titles from the *Book Review Digest* for six years, (2) by compiling titles from the reviews of six weekly journals for three years, (3) by compiling titles from the Columbia University library, (4) by securing recommendations from eighty specialists in the various fields. From these books, some 300 problems were formulated, together with the questions and generalizations that must be answered and used in discussing the problems. This method is presented in full in Chapter XV and an illustration of the material that is obtained from it is given in Chapter XI.

After a careful study of these various attempts to determine a list of the most evident modern problems, the writer would suggest that a reliable list of important problems may be obtained in the following manner:

- (1) *Select a preliminary list of problems.* This may be made up of the problems most frequently found in
  - (a) An extended study of newspapers and magazines.
  - (b) The state and national platforms of political parties.
  - (c) Lists made out by specialists in each of the social sciences.
  - (d) Lists prepared by representative citizens, other than teachers of social sciences.
  - (e) Modern books, as shown by Rugg's analysis.

All problems occurring with considerable frequency in any or all of these lists should be brought together into the preliminary list.

- (2) *Use the "method of judgments" in determining the relative value of these problems.* Have these problems rated by subject matter specialists in each of the social sciences. A compilation and statistical treatment of these ratings will give a list greatly superior to anything we have at the present time. The best



statistical treatment is that used in the construction of scales which are based on judgments.

There would still be left the task of deciding what should be taught concerning the proper solution of each problem and the proper understanding of the conditions which gave rise to it. Here, again, the method of judgments seems to promise the most immediate and the most reliable solution.

It should be clear that this task is not the task of determining what history should be known in order to understand these problems. It is rather the task of deciding with respect to each problem what the final attitudes should be, what practical ability the student should have in dealing with this problem, and what knowledges he should have of the immediate problem and the conditions which gave rise to it.

## 2. What Items in History Contribute Most to the Solution of these Modern Problems?

It is not easy to determine what history is necessary in order that these problems be made intelligible. Many types of investigation have been made in the effort to answer this question. A brief classification of these types is as follows: (*a*) the method of judgment, including the work of committees and questionnaires sent to supposedly competent judges in the fields of history and social sciences; (*b*) the newspaper-magazine method; (*c*) the analysis of books and articles dealing with modern problems; (*d*) the analysis of textbooks in history; (*e*) the analysis of courses of study. Not all analyses of courses of study or history texts are comparable with the other types of investigations, since some of the investigators did not set out specifically to find what history is needed to understand modern problems. They are valuable, at least, in that they depict the present status of our history instruction, as indicated by the textbooks most frequently used, and by printed courses of study. These various types of investigations will be illustrated in the discussions which follow. From the experience which the writer has had with graduate students who have attempted such analyses, he has realized the crudeness of the evidence collected by these methods, with the exception of that of

the carefully trained historian. And yet with all this crudity, data so obtained may be superior to opinions of the *ipse dixit* type, or those given in an off-hand way, even though these opinions be offered by the most eminent educational authority or by the most eminent historian.

(a) *The method of judgments.* Where the method of opinion or judgment is allowed to operate without restricting techniques, many errors are likely to creep in. Such errors may be shown by an examination of the Report of the Committee of Eight. This report, it must be admitted at the outset, is a marked advance upon most courses of study which we have had up to this time. It has made possible the standardization of courses of study throughout the country and has encouraged competent individuals to produce textbooks of a distinctly superior sort. The great improvement of books for the sixth grade is an example of its influence.

Time will permit only a discussion of the selection and the weighting of the values which are to make up the course of study for the elementary school. A brief description will recall the course to the reader's mind. In the first three grades, the time is given over to the study of Indian life and to the study of men and events concerned with special days. In the fourth and fifth grades simple stories, for the most part biographical, dealing with discovery, exploration, pioneer life, and a few events since that time make up the work. The really systematic presentation of the subject begins in the sixth grade, which is given over to the European background. The seventh grade starts with the period of colonization and ends with the study of the Revolution. The eighth grade finishes the history to the present time. For the sixth, seventh, and eighth grades, the work is outlined in considerable detail.

The Committee aids us further by assigning a weight to each of the more important topics in the outline. For example, Greek history is given a weight of 5, Roman history of 7, etc. The committee also suggests the time allotment for each grade. By reversing the relation between these allotments and units of weight, one may roughly approximate a similar weighting for the first five grades in which the units of value are not indicated by the Committee.

It is precisely this praiseworthy attempt to help the teacher by indicating relative values that shows the need of special techniques in using the method of judgments. In the words of the Committee, "numbers indicating, in the judgment of the Committee, their relative value, are appended either to a single topic or to groups of topics." And yet, it is most probable that the Committee never weighted the topics relative to each other, *even in their opinion*, for how could such weights as the following have been assigned?

Cortes and DeSoto	3	Revolt of the Spanish Colonies (Including the Monroe Doctrine)	2
Columbus	4	Industrial Revolution in England and America	4
King Alfred	3	Great changes in Germany, Italy and France (History of the 50 years preceding 1909)	3
Coming of the Pilgrims	4	Causes of the Revolution	4
Raleigh and Gilbert	4	Reconstruction to 1872	3
Wars in America between France and England	8	French Revolution	2

When the topics are grouped, even more striking comparisons are found. In the sixth, seventh, and eighth grades 80 points are given to the period from the discovery of American down to, but not including, the grievances which led to the American Revolution; while but 11 points are assigned to the period in United States History from the close of the Civil War to 1909, and but 10 points to the period from 1793 to 1811. It must be kept in mind, too, that much of the history of the first four grades deals with Indian life, exploration, and colonization. When the various units contained in this report are classified according to their contribution to military, political, economic, or social phases of history, it is seen that the political and military phases are given a very disproportionate emphasis. However, the emphasis on the political and military phases, as recommended by the report, is less than that found in the ordinary textbooks, as shown by the earlier studies made by Bobbitt, and by the later studies made by Rugg.

This disproportionate weighting of political and military history might be somewhat obviated if the political and military prob-

lems were given in their social and economic setting, so that the teacher could see how the social and industrial problems had given rise to the political and military; but neither in the texts nor in the course of study of the Committee is such connection made sufficiently clear.

Both in the course of study of the Committee and in the texts, the outline of the progress of the social, economic, and artistic phases of civilization is extremely episodic and fragmentary. The units of progress are of the political and military, rather than of the social or economic type, although in these last two are to be found the threads which really mark the continuity of history.

*The questionnaire* represents another very common method of collecting judgments. This method is illustrated in the articles of Professor Bagley in the *Fourteenth Yearbook*, and in the chapter by Marston, McKeown, and Bagley in the *Seventeenth Yearbook* of this Society. The results of these investigations give data of value in spite of the fact that only a small number of replies were tabulated. It must be kept in mind that the judgments asked for in these questionnaires constituted, in a sense, 'leading questions.' The attention of the judges was directed to certain types of historical information. For example, among the men of whom judgments were requested there were few artists, musicians, literary writers, great philosophers, inventors, or social reformers. In a similar way the questionnaire on dates had the effect of directing attention to certain conventional dates. Moreover, there was no request for a judgment upon the value of knowing approximate periods rather than specific dates. This is justifiable as a technique provided no report is desired on these additional points, but the investigator must limit his conclusions accordingly.

There is no doubt that a decided improvement in the course of study can be brought about by a more careful use of the method of choices, or judgments. These choices, or judgments, must necessarily be collected by means of questionnaires in order to get a sufficient number. When, however, this method is to be used, particular attention should be given to the following principles:

1. There must be competent judges. The minimal requirement is a training in history and the other social sciences.



2. There must be a sufficient number of judges to negate the effect of peculiarities on the part of a single judge.
3. There must be a clear statement of the point of view which is to govern the judgments.
4. It is probable that these judges should contribute in two ways; first, by making out a list of items of possible value; second, after these lists have been compiled, by rating all items according to their value.
5. The judgments should be made item by item, and not in one lump.
6. All data should be subjected to statistical treatment. The statistical treatment of choices, or judgments, as used in other fields by such investigators as Cattell, Thorndike, and Hillegas is most promising here.
7. There must be a willingness on the part of the investigator to regard himself as but one among many, and to bow to the majority, at least in so far as his research goes.

This method will give results more quickly than any other method worthy of being recommended, and should probably be relied upon to select the material for a tentative course of study, while data of a less subjective character are being collected.

Something has already been done, however, in the way of removing the selection of subject matter a little farther from the sphere of mere opinion or judgment. And while there is still in these attempts much of the subjective, much of crude judgment, and many limitations of individual training and insight, the beginnings noted below are extremely suggestive.

(b) *The newspaper-magazine method.* The technique of the newspaper-magazine method has already been somewhat illustrated in the description of Mr. Sharon's attempt to discover what the modern problems are. It is further illustrated in the study reported by Professor Bagley in the *Fourteenth Yearbook* of this Society and by Dr. Washburne's report in this *Yearbook*. Graduate students in Professor Bagley's class at the University of Illinois analyzed the "historical references and allusions in eighteen editions of the *Outlook* and *Literary Digest*, representing a period of seven years ending with 1913." The results of this study are too well known to need quoting here. As applied to items in history, this method of research is undoubtedly very much more difficult and much



less satisfactory than in such a study as that made by Mr. Sharon. The main difficulties in such an investigation are these: (1) References are likely to be properly scored, but needs for historical knowledge are likely to be passed over; (2) It is quite impossible for one who is not a trained historian to determine what history is essential to the proper understanding of a given issue of any magazine. From the nature of the method of investigation, only isolated items of historical knowledge are indicated. The larger units of historical knowledge are likely to be ignored.

In order to see how difficult it is to determine what history one needs to know for interpreting any modern problem, let readers of this chapter attempt to decide what history should be known in order to understand one week's issue of the *Survey*, say the week of December 28, 1918. Three possible procedures could be followed.

1. You could mark down cases where historical events, periods, conditions or persons are specifically mentioned. Such, for example, as the oppression of the Jews, Yorktown, Declaration of Independence, Marco Polo, etc. This is the method used under the direction of Professor Bagley, the results of which are reported in the *Fourteenth Yearbook* of this Society. The most complete study of this type is that made by Dr. Washburne. It must be obvious that, although these data are welcome as so much evidence, they are not fully adequate for our purposes. If actual mention is made of any individual or of any event of which the reader is ignorant, he is made aware of that ignorance and so may look the matter up in the encyclopedia or in other works of reference.

2. You could attempt to determine what history is needed but not definitely referred to. Much of the history which is most serviceable would not be referred to. Suppose, for example, one takes up the discussion of the bills on the regulation of child labor in the South. No definite mention is made of any historical event, persons, or conditions, and yet to understand properly this problem the very minimal requirement, in addition to the special history of child labor, would be a knowledge of the difficulties attending the industrial and social reconstruction in the South, and a knowledge of the problem of labor in relation to the industrial revolution. The historical development of many other attending

social and ethical problems should also be known. This illustrates a real need for knowing history. To be ignorant and not to know that one is ignorant is one of the worst kinds of ignorance!

3. You may attempt to discover the degree to which your attitudes toward the problems have been influenced by the study of history. In this type of analysis it is possible to check only the history which the reader consciously associates with the topic or problem which is being analyzed. Sometimes, however, an attitude, prejudice, or interpretation may be left after the historical material which is responsible for it has been forgotten. The reader not only does not think of this association; he cannot think of it. He is simply different from having studied the history, without being able to explain fully how it has come about.

In spite of obvious limitations, the newspaper-magazine method apparently is a step away from mere opinion in the direction of objective data. All the data are given in numerical terms, so that at least the method of attack is improved in definiteness.

The reliability of the data secured in this way is dependent upon several factors.

First, it depends upon the *representative quality* of the material analyzed. Clearly, unless the newspapers do actually contain, and in the right proportion, the really important problems of the date of issue, no amount of analysis could secure from such a source the history needed to understand these problems of the day. A study (as yet unpublished) made a few summers ago by Mr. Edgar Curry in a graduate class in education conducted by the writer at the University of Indiana, seemed to indicate that space allotments in newspapers would be a very faulty method of assigning relative values to the problems or phases of life in any community. For example, an analysis of one week's issues of five daily papers gave, according to the judgment of Mr. Curry, the following distribution.

	<i>Total average percent</i>
Trivial gossip .....	20.5
Sports . . . . .	17.0
Business . . . . .	15.8
Educational matters.....	15.0
Politics, national government, international affairs....	13.0

Crime and police.....	9.4
Fires, accidents .....	6.7
Demoralizing news .....	2.6

The high percentage of space given to certain kinds of news is, of course, a matter of common observation. The criticism would apply in a lesser degree to the case of relative values among *civic, economic, and social* problems. For example, while it would be unsafe to accept the amount of space given in a newspaper as a measure of the relative importance of public school problems and prize fighting, it would be much less dangerous to measure in that way the relative importance of any given civic problem as compared with any other civic problem.

In the second place, the reliability of the data depends upon the *amount of magazine or newspaper material analyzed*, and the distribution of the issues in point of time. Furthermore, if national problems are sought, a wide distribution in area must be insured.

In the third place, there must be some way of limiting the personal equation in scoring. It is clear that the investigator can not tell what history is needed to understand a given problem if he does not recognize the problem when he reads a treatment of it. To get some measure of such variability, eight graduate students were asked to analyze the civic problems occurring in one issue of the *Chicago Herald* according to the outline prepared by Mr. Sharon. The table shows how many times each problem was reported by each of the eight students.

Subject	Student							
	1	2	3	4	5	6	7	8
Taxation .....	5	4	0	2	6	4	5	4
Workmen's compensation.....	6	1	0	0	4	0	10	0
Liquor and prohibition.....	0	1	0	1	0	2	0	0
Child labor .....	0	0	0	0	0	1	0	0
Suffrage, election .....	8	4	5	3	12	10	12	5
Pensions, widows, mothers.....	0	0	0	1	0	1	0	0
Public service commissions								
(Interstate commerce) .....	4	2	0	4	4	9	6	0
Employers and labor.....	5	22	1	5	7	7	10	6
Money and banking.....	3	4	8	2	3	15	13	3
Monopoly and legislation.....	14	6	0	14	9	19	13	4

Foreign relations (not including investigations) .....	29	12	4	12	20	18	36	12
Conservation .....	0	1	1	1	2	1	6	1
Pure Food .....	2	1	1	2	0	3	2	1
Immigration .....	2	1	1	1	1	1	1	1
Reorganization of courts.....	0	0	1	0	0	19	2	0
Patronage .....	0	0	0	0	0	2	1	0
Civil Service .....	0	0	2	0	1	1	0	0
Lobbyist .....	0	0	0	0	0	0	0	0
Farm rentals .....	0	0	0	0	0	0	0	0
Crime .....	5	12	1	13	0	0	10	0
Agriculture Department .....	0	1	0	0	0	0	0	0
Divorce .....	0	1	0	0	0	0	0	0
Army .....	0	0	1	0	0	0	0	0
Postal service .....	0	0	0	0	0	1	0	0
Education .....	0	0	0	0	0	1	0	0
Preparedness .....	0	0	0	0	0	0	0	5
Totals.....	43	54	30	61	77	115	137	42

These differences are astounding, but they are what one may expect unless each heading is described in detail so that there can be no doubt as to what should be scored under any given heading, and unless the scorers are familiar with the field being analyzed. Of course, the more complete and similar the training of the scorers in the special subject being analyzed, the less will be the variability arising from this cause. Naturally, there is little variability in recording items which are specifically mentioned in the headlines or contents.

The fourth factor affecting the reliability of the data is the unit of measure used in scoring. A great variety of units have been suggested. It seems probable that some method of measuring the space accorded to any reference would be the most nearly representative of the true weights which the writers of the articles intend to assign, particularly when the periodical sets some limit upon the space allowed to any given department.

In summary, if the four limiting conditions outlined above are carefully attended to, it seems likely that an analysis of newspapers and magazines will give data suggestive and helpful to the curriculum-maker. At the very least, a careful and extensive study



conducted along these lines will indicate the problems which are kept before the people through the agency of periodical literature. This in itself would give data which could not be disregarded by anyone who wished to undertake in a practical way the improvement of the knowledge, habits, and ideals of any community with regard to these problems. Dr. Washburne's data clearly show what the references are which most frequently confront the newspaper reader.

*Historical Subject Matter Found in Books Dealing with Modern Problems.* In the *Sixteenth Yearbook, Part I*, the writer reported an investigation carried on with the co-operation of Professor Plum, of the Department of History of the State University of Iowa. In this investigation, members of the various social science fields at that University were asked to list the modern problems of greatest importance, and for each problem to list the books which gave the most intelligent treatment. Books which were plainly historical in treatment were excluded. As a check against the data obtained from these books, articles upon similar problems in the *International Encyclopedia* and in periodicals of the best type should be analyzed.

For the detailed description of method, results, and recommendations, the reader is referred to the original article. In brief, the study shows that if the data reported are taken at face value, one could conclude:

- (1) That the requirements with regard to certain dates in history are not justified.
- (2) That periods, rather than isolated dates, should be stressed.
- (3) That modern history should be given very much greater emphasis than early history.
- (4) That certain biographies have been neglected, while others have been over-emphasized.
- (5) That there should be very much larger emphasis than there is upon the social and industrial phases of history.

More recently Dr. Harold Rugg has completed a much more extensive study along similar lines. The books he has analyzed are perhaps of a more progressive and pioneer type than were the books studied by the author.



It seems clear that this method has in it much of promise. The method of research, however, needs to be improved. The following principles need especially to be emphasized:

- (1) The technique earlier recommended in this article should be used in determining the problems.
- (2) The most representative books dealing with each problem may be determined, (a) by having subject matter specialists make out a list of the best books, and (b) by submitting the books most frequently named in this preliminary list for rating by the same specialist. There would be an advantage in asking for the best book representing each of the divergent points of view in treating each problem.
- (3) The books should be analyzed by individuals who have had adequate training in history and in the social sciences.
- (4) The directions for scoring should be very explicit.
- (5) The problems covered by the books should be studied in at least two encyclopedias and in periodicals of the best sort. This will afford a basis of comparison.

With these provisions, such a study will undoubtedly produce very valuable results. And yet, because of the difficulty of getting adequate treatments of all significant modern problems, the results obtained will be of greatest service in affording data and stimulation for use in the method of judgments.

*An Analysis of Texts.* Perhaps the best-known study of modern textbooks in history is that reported by Bagley and Rugg in *Bulletin 16 of the University of Illinois, School of Education*. The authors carefully analyzed the content of 23 history textbooks published from 1865 to 1915 and interpreted their findings in a skillful manner. There was no attempt in this study to analyze the amount of history in the various texts which contributed directly to any or all of our modern problems. Such a study was undertaken a number of years ago by Bobbitt. A more extensive study has been completed by Harold Rugg and Earle Rugg and is reported in Chapters I and IV and in the Appendix of this *Yearbook*. Both of these investigations show the short-comings of our modern textbooks, provided one accepts the principle that the main function of history is to contribute to the intelligent solution of modern problems.

Naturally, studies of modern textbooks show what *is* or what *is not* in our present textbooks, rather than what *should* or *should not be* in them. Those who criticise these texts for their content and emphasis must find a justification for their criticism in sources which lie outside the texts themselves. Most of the criticisms are based upon assumptions that certain materials should or should not be taught. One finds it difficult to accept the theory that a crude sort of trial and error has operated to include valuable subject matter and to exclude material of little value. That such an influence has made itself felt to a very great degree seems unlikely after an examination of the texts in the light of the more direct evidence as to what the values in history really are. The studies of texts do, however, give us a basis for determining in what respects our books need most to be revised.

As a means of discovering what history is needed for an understanding of modern conditions, the analysis of texts is not so valuable as the other methods described in the preceding sections.

This statement is largely true also of courses of study. These courses show the present status with respect to the time allotments, topics treated, grading, organization, reference materials, and the like. They are scarcely so reliable a measure of actual practice as textbooks, but may be a better indication of new tendencies. It seems probable that an analysis of the courses of study along with textbooks should be made at least once in ten years in order to have a basis of procedure in our practical steps for the improvement of teaching.

One may note, in passing, the various appraisals which have been made of modern texts by individuals and organizations representing special interests. One of the earliest of these is the study which Altschul made of the American Revolution in our school textbooks. Altschul interpreted his data to indicate that our textbooks in history were becoming increasingly anti-British. Since that time several investigators have sought to show the pro-British tendencies in some of the same histories. Representatives of other organizations have scrutinized or investigated our textbooks from the special point of view of race, religion, economic theory, or sectionalism. That there have always been attempts to

regulate the teaching of history and other social sciences is shown by a recent study of the factors influencing the teaching of American history which is being completed by Miss Bessie Pierce, Head of the History Department of the University High School, State University of Iowa. Miss Pierce has made a careful investigation of the nature of the attempted controls exerted through the uses of legislation, oaths of loyalty, teaching certificates, flag legislation and observance days, the propaganda of special societies, and through the reports of such committees as that appointed in New York City to review and evaluate texts in history.

Obviously, the history teacher and the textbook-maker would welcome an authoritative course of study constructed upon sound principles through the use of scientific methods. Such a course of study will give authors and teachers alike a platform upon which to stand in their efforts to present history impartially and for the good of the country as a whole.

We may congratulate ourselves upon the great strides which have been made in solving the problems involved in constructing such a course in history and the other social sciences. Some of the questions which were unanswered five years ago are now answered with a reliability sufficient for all practical purposes. This is true of our inquiries concerning newspaper and magazine references, the occurrence of issues in political platforms, and the status of textbooks and courses of study. A beginning has been made in gathering data to answer the other questions. Most important of all, we have developed the techniques by which, when they are refined, these questions can ultimately be answered.

## CHAPTER XV

### PROBLEMS OF CONTEMPORARY LIFE AS THE BASIS FOR CURRICULUM-MAKING IN THE SOCIAL STUDIES

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In Chapter I and again in Chapter IV of this *Yearbook* it is shown very clearly that courses of study in the social sciences have been constructed by inadequate methods. The content of the material, its assignment to particular grades, and its modes of presentation have been determined by arm-chair opinion instead of by scientific investigation. Vigorous criticism has been made during the past ten years of the existing courses and of the methods by which they have been organized.

The protagonists of reorganization have proposed the use of methods which are far more objective. The methods which they propose are based upon the analysis of life needs. For example, to determine which historical and geographic allusions the masses of our people should understand for intelligent daily reading, an analysis has been made of the contents of newspapers and magazines.<sup>1</sup> To determine which facts of geographic location people should know, an analysis has been made of the actual activities of human beings; statistics have been compiled on populations, areas, exports and imports, wealth, and other things that relate to these needs. Opinions of specialists in geography have also been collected. In order to determine what the critical issues of the day are—as the politicians tell it—an analysis has been made of state and national political platforms.

These methods are much more scientific than the “committee” methods to which frequent references have been made. They secure facts which the curriculum-maker must have. In our part of the curriculum-making in the Lincoln School my colleagues and I are using the findings of these investigations with great care and interest.

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<sup>1</sup>See Supt. Washburne's discussion, Chapter XIII.



The studies referred to have two weaknesses. They tell the curriculum-maker a part, but only a part, of what children need to know to participate in social, economic, and political life as it is. They do not, however, furnish nearly all of the basis for making the curriculum, even for a static society. Their greater weakness is that they seek to fit children to take part in life as it is to-day. That is, they tend to ignore the demands of a rapidly changing society. We need, of course, to prepare our youth adequately to participate in life activities. That, the studies of current activities will help us to do. But we need also to prepare them to improve the situation in which they will find themselves as adults. We must equip them to be constructively critical of contemporary social, economic, and political organization. To do this we need, in addition to knowing what the current modes of living are, three vital types of information. First, we need to know in what respects experts think the current modes of living should be changed; second, what the insistent problems and issues of the day are; third, what the likely problems and issues are with which the growing generation will have to grapple. The first problem, needed changes in current modes of living, is being attacked by Mr. Harap. His studies, reported in Chapter XVI, represent a most important beginning in this huge task. His findings provide one important basis for making the curriculum in the social sciences.

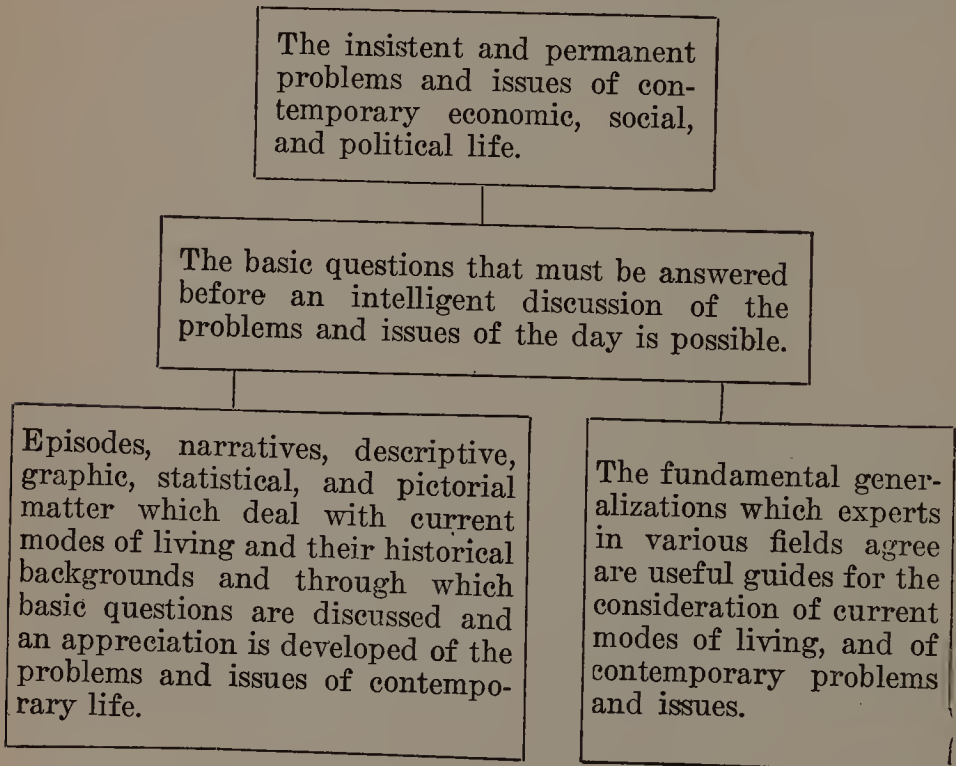
But to make a curriculum for a troubled society—as ours surely is—we must bring the growing generation into contact with the most critical problems of that society. And we cannot be content with just that. The present social and political organization is changing rapidly. The most unusual political proposals of one decade become the basis of legislation in the next. So our society is not only troubled and faced with big and insistent problems; it is also dynamic, and our curriculum must be correspondingly so. Hence, it appears that a fundamental basis for the curriculum in the social sciences is a statement of insistent and permanent problems. It is not enough to fit our curriculum to the problems and issues of to-day—we must have the courage to use it to meet the problems which experts predict will continue to be insistent in the



adult life of the growing generation. This point of view says, implicitly at least, that the school, among other things, is our most important agency for the improvement of society. It asks: *Are we not delinquent representatives of that agency unless, besides making our curriculum keep pace with the changes in that society, we anticipate what those changes are going to be and use the curriculum to prepare children to meet them?*

That is precisely the basis for the experimental work in the social sciences which my colleagues and I are carrying on in the Lincoln School of Teachers College. The tentative course which has resulted from three years of study and observation is outlined in Chapter XI. The theory on which the course has been constructed has evolved gradually as the work proceeded. It is set forth in semigraphic form in the accompanying chart.

#### THE BASIS FOR THE PROPOSED COURSE IN THE SOCIAL SCIENCES



In considering the chart the reader is asked to have in mind that the facts of the course will be checked against Mr. Washburne's newspaper and magazine analysis and Mr. Harap's study of modes of living. If any material of established social value is omitted by the application of the "problem" control, the probability is that most of it will be discovered in checking against these two studies.

In the last analysis, however, I would let the "problems and issues of contemporary life" control the content or organization of the course. Conceive of a group of children moving on through the school, grade by grade, maturing year by year. Assume, for the sake of the argument, that they will remain through the last grade of the school. What must the social science curriculum do for these boys and girls who are shortly to take up the duties of citizenship, enter industry, commerce or the professions, and make their contributions (or fail to make them) to the cultural life of the community? First, what shall we do, say in the twelfth grade, for that is the grade in which public-school pupils are most mature? My whole theory leads to the conclusion that they should study and discuss in that grade the problems and issues of industry, politics, and social affairs.

Do not mistake me; I suggest this for the twelfth grade only because the students are then as old mentally and socially as they ever are in public schools (with the possible exception of a few "junior colleges"). Of course we should experiment with these current "problems and issues" in lower grades as well—the eleventh, tenth, even the ninth. In the Lincoln School of Teachers College we are at the present time trying these very materials in the ninth grade. It is already clear that most of the "problems and issues" cannot be taught as "problems" at that level of mental maturity.

But in order to deal effectively in the eleventh or twelfth grade with problems and issues, it is necessary that all through their previous years they shall have read episodes, historical narratives, studied and made maps, dealt with graphic and pictorial matter, solved problems, and debated questions which were adapted to their stage of development and designed to develop an acquaintance with, and appreciation of, the problems that they are to meet in the

PROBLEM NO. IV. PROBLEM OF DEVISING METHODS BY WHICH I  
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Authors	Into what particular regions did they go in the largest numbers?		What proportion go to the different sections of the country?		Why do they go into the industrial region?		Why have immigrants congregated in the very largest cities?		Why do immigrants go to cities now, when formerly they went to farms?	
	Page Number	No. of Pgs	Page Number	No. of Pgs	Page Number	No. of Pgs	Page Number	No. of Pgs	Page Number	No. of Pgs
Jenks, J. W.; Lauck, W. J.: <i>The Immigration Problem.</i>	80-88	✓	80-88	✓	80-88	✓			27 99-100 101-103	$\frac{3}{4}$ $1\frac{1}{2}$ $2\frac{1}{2}$
Fairchild, H. P.: <i>Immigration.</i>	206-7 226-27 228-29 231-32	1 1 1 $\frac{1}{2}$	206-7	✓	229-31	✓	229-31	$2\frac{1}{2}$		
Roberts, Peter: <i>The New Immigration.</i>	156-61	Q					156-61	1	156-61 162-62	✓ 1
Orth, Samuel P.: <i>Our Foreigners.</i>	126-27 141-42 164 176-77 179	$\frac{3}{4}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$								
Warne, Frank J.: <i>The Tide of Immigration.</i>					224-25	$\frac{3}{4}$				
Hall, Prescott F.: <i>Immigration and Its Effects upon the United States.</i>	170-71 169-170	$\frac{1}{2}$ $1\frac{3}{4}$	88-89	$1\frac{3}{4}$						
Kellor, Frances: <i>Immigration and The Future.</i>										
Smith, Richmond Mayo: <i>Emigration and Immigration.</i>	69-71	2					71-72 120-122	$2\frac{1}{2}$ $1\frac{1}{2}$		
Abbott, Grace: <i>The Immigrant and the Community.</i>										

The checks (✓) mean that the question was discussed in the stated pages, but that the pages

AN BE EFFECTIVELY DISTRIBUTED AMONG THE DIFFERENT REGIONS  
TATES.

REGIONS

Which nationalities have settled on farms? In cities?		Why have certain nationalities gone to farms?		What changes have come about in this respect in recent times?		What distinctions are there between nationalities as to settling in city or country?		Where do recent immigrants go who go into agriculture?		What are the factors contributing to the distribution of immigrants?		How have the states tried to aid in the distribution of immigrants?	
Page Number	No. of Pgs	Page Number	No. of Pgs	Page Number	No. of Pgs	Page Number	No. of Pgs	Page Number	No. of Pgs	Page Number	No. of Pgs	Page Number	No. of Pgs
		81-2	1 ¾					81-99	18				
153-56	✓	208-210	✓	208-10	✓	208-10	✓						
208-10	2 ½	210-11	✓	210-11	✓	210-11	✓						
210-11	1 ¼	212-13	✓	212-13	✓	212-13	✓						
212-13	1	213-14	✓	213-14	✓	213-14	✓						
213-14	½												
148-49	2									220-21	1 ½	304-7	3 ¾
225-26	2											307-10	3 ½
232	½												
												53-54	1

under another question.

higher grade. In other words, the curriculum is to keep pace with the developing maturity of the pupil. But one criterion is of great importance at this point: *the questions and problems which are the basis of the course in any year shall be as mature as experiment proves it possible to use.* That is, some problems or questions upon which the discussion turns will be discovered to be intelligible to pupils even in the intermediate grades. Furthermore, the data from which an adequate understanding of them arises can thereby be discovered and assigned to their proper grade.

Before leaving these introductory matters, may I lay emphasis on the fact that it is not expected that even twelfth-grade pupils will *solve* these problems and issues? Adult society itself has not "solved" them—if it had, they would not be confronting us to-day. No, our task is to bring in review before the students year by year and in form adapted to their developing abilities, the evidence which is necessary for the consideration of all aspects of a given problem. An unpartisan, open-minded review of the evidence on both sides is what our school pupils need most of all.

This, then, is our procedure: first, find the *problems and issues* of modern social life; second, find the particular *questions* which have to be answered in order to consider all angles of the various problems; third, select typical "episodes" which illustrate the more important points to be made, collect the *facts*, in narrative, descriptive, graphic, pictorial or statistical form, that are needed to discuss the questions and the problems; fourth, to clarify and fix the essential matters, discover the basic *generalizations* that guide our thinking about society.

#### HOW THE PROBLEMS AND ISSUES ARE DISCOVERED AND UTILIZED

Who knows best what the insistent problems of the day are? The newspaper writers? Our municipal and national officials? Teachers of the social sciences? Makers of legislation?

No one group of these is as well equipped to state the issues as is a group of writers and publicists I have chosen to call "frontier thinkers." They are students of government, like Bryce, Beard, Zimmern, Garner, Lippmann, Merriam, Graham, Wallas, Laski, McDonald; specialists in the study of immigration, like Frances



Kellor, Burns, Park, Miller, Gavit, Jenks and Lauck, Fairchild. In what group of thinkers can one find more insight and mature judgment on world politics than from men like Gibbons, Bryce, J. A. Hobson, J. M. Keynes, Vanderlip, Moulton? In industrial and economic matters who can give us more help than students like Commons, Tawney, J. A. Hobson, Friday, Bruère, Webb? The answer to the query is: No where can you find better analysts of current affairs. These and a few score of others like them are our "frontier thinkers." They are out on the firing line of social analysis. From their matured statements we can secure both an analysis of the issues of social life and a prevision of what the problems are that the children of our generation will be wrestling with when they take their places as citizens in the "Great Society."

From the books of several score of these frontier thinkers we collected the statements of the problems and issues which make up the basis of our course. It seemed clear that the carefully matured printed statements of these specialists were more valuable than would be any statements that they might give us on question blanks. During the past three years more than one hundred and fifty books like those listed at the end of this chapter have been analyzed and the insistent problems of the day formulated from them. These books were selected in the following way. First, books in the social science field were listed from the *Book Review Digest* for the years 1915-1922; only those books were listed which were referred to as books of distinct merit, irrespective of economic or political faith. Second, the book reviews of six weekly and several monthly journals were read for three years. All books which the reviews characterized as important were purchased and analyzed for their statements of "problems." Third, this list was supplemented by a canvass of several thousand books on the shelves of the Columbia University library. The fourth lead—one of the most important ones—was to secure from each of some eighty specialists a list of ten books in his own field (industry, population, national government, world politics, and the like) which he would use to obtain statements of problems in his field. It was stressed that the statements must represent deep insight and balanced vision and that the books likewise should be chosen irrespective of economics or political faith.

From these four procedures a basic list of books was chosen. Representative books are given at the end of this chapter. This list is being added to constantly, because new books of the most important type are coming from the press. For example, our investigation would have missed much if it had not made use of Robinson's *Mind in the Making*, or Lippmann's *Public Opinion*, which have been published recently.

These books have all been carefully studied and statements of contemporary problems written and revised from them several times. The detailed contents of many of them have been tabulated to determine the questions which they take up in discussing the problems under consideration. This work has not been completed and the statistical results of the tabulations cannot be printed at the present time. The entire investigation will be reported as a detailed monograph at a later date.

A sample list of the problems is given next. The complete list cannot be published at the present time, for the statistical work on which it is based is also still in process. Each book is being critically analyzed by tabulating the space (in quarter pages) devoted to each of the questions which is discussed in the book. Thus, the book is thought of as employing three kinds of material: first, treatments of problems and issues (there may be one or a half dozen in number in a given book); second, the basic questions which must be answered in the consideration of the problems and issues (these vary in number from 100 to 300, depending on the book); third, the use of generalizations, or principles, which authorities agree upon and which should be understood by the rank and file of our people. We have compiled some 2000 of these from all the fields taken together.

Let us illustrate these different matters. First, I give our complete list of immigration problems. Remember that these problems have definitely determined the content of our pamphlets in the seventh, eighth, and ninth grades on immigration. No topics are treated in the course itself unless they are called for by the questions which are discussed in the books which treat these problems and issues.

**A LIST OF CONTEMPORARY PROBLEMS OF IMMIGRATION ON THE  
BASIS OF WHICH COURSE MATERIAL IN THE SOCIAL  
SCIENCES IS BEING CONSTRUCTED**

(This list is typical of the total list of 300.)

- No. 1. Problem of determining on what bases to admit immigrants.
- No. 2. Problems of safeguarding the transportation of immigrants from their homes to America.
- No. 3. Problem of assimilating immigrants into American industry so that at the earliest possible moment they will be economically independent.
- No. 4. Problem of devising methods by which immigrants can be effectively distributed among the different regions of the United States.
- No. 5. Problem of improving conditions under which immigrants work.
- No. 6. Problem of raising the immigrant to the American standard of living.
- No. 7. Problem of utilizing public schools effectively in the education of adult immigrants and their children.
- No. 8. Problems of naturalizing the immigrant so that he can participate intelligently at the earliest possible moment in our political life.
- No. 9. Problem of getting the American business man and the immigrant to cooperate in buying and selling.
- No. 10. Problem of securing the cooperation of the foreign language press as an agency for assimilation.
- No. 11. Problem of utilizing the immigrant church and immigrant fraternal organization to assimilate the immigrant into American community and national life.
- No. 12. Problem of making immigrants law-abiding citizens by acquainting the immigrant with American customs and laws.
- No. 13. Problem of arousing the American people to formulate a constructive immigration program.

The table pages 264-265 illustrates the way in which the discussion of problems and questions is tabulated from the nine immigration books. Only one topic is chosen for an illustration: "The Distribution of Immigrants by Regions." Thirteen questions were found to be discussed by one or more of the books. This particular topic is a good example of the fact that, while some questions are discussed by all of the leading authorities in a field, others are treated by only one or a few.

The thirteen immigration problems with their 450 subordinate questions appear on twenty-five large tables. The data serve two important purposes: first, they provide a tabulation of the facts, principles, and crucial questions of a given field as treated by the

frontier thinkers in that field; second, the material provides an analytical bibliography which is invaluable in preparing readings for school pupils. By studying these charts we have been under little doubt as to which problems, topics, and questions should be discussed. In deciding which ones to include in the course we are swayed by two considerations; first, the extent to which authorities agree the questions are urgent; second, the way in which they discuss the questions. It is sometimes true, of course, that a question is important and must be included in the curriculum, even though it is not treated by even a majority of the specialists. This does not happen often, however.

Is there not in this method the suggestion of a more objective method of determining what history to teach our pupils? This procedure suggests that we should teach (as the minimal essentials course) only that historical background of each institution or mode of living that is necessary to obtain a clear acquaintance with, and appreciation of, that mode of living and of the problems and issues of the present day. We are now experimenting with this criterion by tabulating the history which students of present-day problems use in discussing those problems. For example, we find that students of immigration very generally agree on the importance of certain movements and developments in immigration. Experts in world affairs very commonly employ much the same historical explanation of these affairs. Our endeavor should be to obtain an objective basis for the history which we select for school children—especially since we have the time to tell only a small part of the story. Our tentative procedure is a step in this direction.

Before leaving this topic, it should be emphasized that the tabulation of the contents of these frontier books does *not* provide us with a criterion for deciding *how much* time or attention to give to any one problem, topic, or question. Such decisions can be made only by trying a number of allotments with public-school children and by choosing the best one. That is a teaching problem, an experimental matter, not at all a question of whether or not the points under consideration shall be included in the curriculum.

To illustrate the scope of our whole scheme I give in conclusion the major topics under which the problems are grouped and one



or two examples of problems in each group. The analysis of the whole field is a gigantic task and is only partly completed. The complete statistical findings for all the problems, questions, and generalizations will be reported in a monograph at a later date.

#### A SHORT LIST OF CONTEMPORARY PROBLEMS

(A complete list like these determines the content of the course in the Social Sciences. This partial list is included only to illustrate the more complete one.)

- A. Problems of Immigration. (The entire list has been given.)
- B. Problems which deal with Natural Resources.
  - Examples: 1. How can we provide for the wide-spread ownership and development of farm land and homes?
  - 2. Problem of making available adequate rural credits.
- C. Problems of Industry and Business.
  - Examples: 1. Problems of securing the fullest cooperation between labor and capital.
  - 2. Problem of providing continuous employment for all.
  - 3. Problem of utilizing government control to secure efficient and fair administration of concentrated forms of industry and business.
  - 4. Problem of determining what shall constitute a fair price.
- D. Problems Involved in Developing and Maintaining an Adequate and Efficient Transportation System in America.
  - Example: 1. Problem of correlating our rail, water, and motorized transportation.
- E. Problems of the American City.
  - Example: 1. Problem of how to give to community life, both urban and rural, the physical situation and the intimate neighborhood relations which are typical of the American suburban community.
- F. Problems of Education and the Formation of Intelligent Public Opinion.
  - Examples: 1. Problem of adult education in citizenship.
  - 2. Problem of adult education by the dissemination through the press of the essential facts concerning contemporary economic, social, and political matters.
- G. Miscellaneous Social Problems.
  - Example: 1. Problem of making the impoverished economically independent.
- H. Problems of Government in the American Democracy.
  - Examples: 1. Problem of determining what the government should do—the services it should render.



2. Problem of insuring that a particular form of government is effective; *e.g.*, how secure simple, direct, responsible government in a nation of large territory?

J. Problems of World Affairs.

Examples: 1. Problem of developing a science of world politics, "so that wastes and war can be eliminated and the common interests of mankind brought under common control."

2. Problem of civilizing backward peoples and of developing undeveloped lands.

BOOKS WHICH ARE TYPICAL OF THOSE UPON WHICH STATEMENTS OF CONTEMPORARY PROBLEMS AND ISSUES HAVE BEEN BASED

A. Problems of Immigration.

1. Jenks, J. W., and Lauck, J.: *The Immigration Problem*. Funk & Wagnalls Company, New York City.
  2. Kellor, Frances: *Immigration and The Future*. G. H. Doran Co., New York City.
  3. The Americanization Studies: Allen T. Burns, Editor. Harper & Brothers, New York City.
- Twelve important books on Immigration and Americanization.

B. Problems which deal with Natural Resources.

1. Mead, E.: *Helping Men Own Farms*. Macmillan.
2. Van Hise, C. R.: *Conservation of Natural Resources*. Macmillan.

C. Problems of Industry and Business.

1. Cole, G. D. H.: *Chaos and Order in Industry*. Methuen, London, England.
2. Federated American Engineering Societies. *Waste in Industry*. McGraw-Hill Book Company, New York City.
3. Gleason, Arthur: *What the Workers Want*. Harcourt Brace, New York City.
4. Hobson, J. A.: *Evolution of Modern Capitalism*. Scribners, New York City.
5. Marshall, L. C.: *Readings in Industrial Society*. University of Chicago Press, Chicago, Illinois.
6. Tawney, R. H.: *The Acquisitive Society*. Harcourt Brace, New York City.
7. Veblen, T.: *Theory of Business Enterprise*. Scribners, New York City.
8. Zimmern, A.: *Nationality and Government*. McBride, New York City.

D. Problems Involved in Developing and Maintaining an Adequate and Efficient Transportation System in America.

1. Johnson, E. R., and Van Metrie, T. W.: *Principles of Transportation*. Appletons, New York City.

- E. Problems of the American City.
1. Fosdick, Raymond: *American Police Systems*.
  2. Howe, F. C.: *The Modern City and Its Problems*. Scribners, New York City.
  3. Whitaker, C. H.: *The Joke about Housing*. Marshall, Jones, Boston.
  4. Wood, Edith: *Housing of the Unskilled Wage Earner*. Macmillan.
- F. Problems of Education and the Formation of Intelligent Public Opinion.
1. Lippmann, W.: *Public Opinion*. Harcourt Brace, New York City.
  2. Robinson, J. H.: *Mind in the Making*. Harper's.
  3. Wallas, G.: *The Great Society*. Macmillan.
- H. Problems of Government in the American Democracy.
1. Beard, C. A.: *American Government and Politics*, Macmillan.
  2. Bryce, James: *Modern Democracies*, 2 vols. Macmillan.
  3. Garner, J. W.: *Introduction to Political Science*. American Book Company, New York City.
  4. Lippmann, W.: *Preface to Politics*. Henry Holt, New York City.
  5. Merriam, C. E.: *American Political Ideas*. Macmillan.
  6. Wallas, G.: *Human Nature in Politics*. Constable & Co., London.
- J. Problems of World Affairs.
1. Bass and Moulton: *America and the Balance Sheet of Europe*. Ronald Press, New York City.
  2. Bryce, James: *International Relations*. Macmillan.
  3. Gibbons, H. A.: *Introduction to World Politics*. Century, New York City. Also his *New Map of Asia*, *New Map of Africa*, *New Map of Europe*.
  4. Keynes, J. M.: *Economic Consequences of the Peace*. Harcourt Brace, New York City.
  5. Vanderlip, F. A.: *What Next in Europe?*

## CHAPTER XVI

### CURRICULUM-MAKING AS APPLIED TO THE ECONOMIC ASPECTS OF LIFE

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It is to be expected that a population which enjoys at least eight years of compulsory education should show a little intelligence in the daily habits of living. It is the opinion of the writer after considerable study that the schools of our nation do not teach our population to live effectively and that a revision of the curriculum is one of the important means of improving this condition. It is the purpose of this paper to suggest a method of revising the curriculum in so far as it deals with some of the economic aspects of life.

#### THE METHOD OF CURRICULUM MAKING

There are five factors which condition the curriculum:

1. The fundamental elements of effective social life
2. The nature of the learner
3. The laws of learning
4. The nature of the teacher
5. The attitude, resources, and limitations of the community

Theoretically, then, the problem of curriculum making is to select and organize ingeniously each unit of school activity to meet the demands of these five factors. Obviously, a program of school activities can only be designed after a great amount of thorough research, careful revision, and scientific organization.

The term "school activities" is used here in place of "school studies" or "school subjects" because the latter approach to the revision of the curriculum for effective living brings the curriculum-maker to an *impasse* which forces him back to an analysis of life activities. One discovers very soon that the habits of living of

our people are not changed very much by the classroom study of history, geography, arithmetic, etc.

The school activities must be based upon a study of the fundamental needs of life; they must conform to the nature of the learner; they must be organized to obtain the best advantages of the laws of the learning process; they must be selected and organized on the assumption that they are to be administered by a teacher; and they must be adapted to the educational resources and limitations of the community.

### Curriculum Making a Cooperative Task

The American universities have developed experts in the departments which are concerned with these five factors who are competent, cooperatively, to assemble and organize a scientific curriculum. There are now in the field a number of specialists who are skilled in the scientific determination of curriculum objectives and who have made considerable headway in furnishing the sociological basis of the school activities. The psychologists and directors of experimental schools have made progress in discovering the nature of the child as it relates to school life. The psychologists, too, have refined the laws of the learning process and have begun to organize school activities scientifically for effective learning. Administrators are studying the equipment of the teacher and the conditions of the community which affect the educational process. These three groups of specialists, the educational sociologists, the psychologists, and the administrators, are prepared to formulate a curriculum in accordance with one or more of the fundamental demands of the educational process.

In fact, these three groups of specialists are now engaged in the very task of re-making curricula. Each group, however, is doing this independently, employing its specially developed procedure and making its own peculiar emphasis. Consequently, each group is producing textbooks and courses of study perfect only in that phase in which its members are specialists.

The psychologists have written textbooks which, while remarkable achievements in the organization of content for maximal learning, have failed to meet the very fundamental demands of social

life. Another group has made noteworthy quantitative studies of social needs, has selected the content with scientific care, but it has neglected to organize the content according to the best discoveries of the psychologist, the experimental school, and the administrator. Those in charge of experimental schools have been very faithful in adapting the curriculum to the child's true nature, but they have failed to take into account the fundamental needs of life as ascertained by the sociologist, and also to organize the school activities for maximal learning. It is obvious that what we need at this point is the pooling of the gifts of these experts in the common task of curriculum making.

The reconstruction of the curriculum should be the result of the cooperative effort of the experts in the several departments of educational study which affect the curriculum. The first selection of the content of the school activities should be made by those who have developed the special technique of ascertaining the fundamental needs of society. Having finished their work, they should pass their data on to the expert on the nature of the child whose responsibility it will be to make a further selection and a rough organization of the material in accordance with his knowledge. These roughly selected and organized data should in turn be passed on to the expert on the learning process whose duty it will be to organize the content for most effective learning. The tentative curriculum should then go to the administrator who will make the adaptations which conform to the nature of the teacher and to the resources and limitations of the community. After the material has been the rounds, the experts should assemble in conference with the original and revised material before them for the purpose of balancing the fundamental demands in an attempt to integrate the content in accordance with the five important educational factors. It is conceivable that one genius can embody the five-fold skill required for scientific curriculum-making, but it is prudent to call on specialists until such a genius can be discovered.

#### The First Step in Curriculum Making Illustrated With Respect to Economic Life

The first step in curriculum making will be illustrated with respect to that portion of the curriculum which has to do with



the economic aspects of life. We are to ascertain the sociological basis of the school activities which prepare the individual to live economic life effectively. The body of recommendations which will be made will be called *objectives*, because they are habits, skills, knowledge, and attitudes which should be achieved by educational activity.

To ascertain educational objectives of the economic life of the people of our nation it is necessary, first, to know what their present economic habits actually are. Second, we must compare these habits with standards of good living which have scientific support, such as the daily food requirement, or with standards which are widely accepted although they have not yet been scientifically demonstrated, such as the housing standard worked out by our government during the war. Third, we must refer the economic habits of our people to the social axioms which have universal acceptance in our country and which derive their sanction from the very nature of our government and institutions. This procedure will issue in conclusions recommending that certain of our habits are utterly bad and should be discontinued; that others are poor and should be improved; and that there are some good habits thus far neglected which should be developed. These conclusions are the ends, or objectives, of economic life to be attained by the educational process.

This task derives much of its value from the present voluminous output of facts and figures concerning the economic status of the country. During the war it was necessary to reorganize industries and to readjust prices and standards of wages and production. To do this a great number of studies were made by government agencies, war boards, chambers of commerce, and labor organizations. Consequently, scores of significant reports are now available. Furthermore, these reports have stimulated business men and trade unions to maintain research departments. Independent research bureaus sensing the demand for economic information have also come into existence. These agencies will furnish material for continuous revision of the curriculum in accordance with the new discoveries of our present social and economic needs. Such a situation argues strongly for the abandon-

ment of the old introspective method of assembling courses of study and curricula, and for the introduction of a new scientific approach to the task of curriculum-making.

This task can be greatly facilitated by the establishment of an information service in the departments of education of the nation, state, and city. The data furnished by the service should be organized and distributed in several sections corresponding to the great divisions of the curriculum. The service should have two distinct purposes. First, it should contain abstracts of the most important literature in each of the curriculum subdivisions. It should contain facts and figures which will help to keep school content up to date. Second, the information gathered by experts in the central education department should form the basis for the regular, periodic revision of the curriculum by experts in the government departments as well as in the local districts and schools. It is indeed appropriate that the state should begin the important movement of replacing the superintendent, principal or teacher, to whom curriculum making is a secondary function, by a trained body of curriculum experts.

#### An Illustration of the Procedure Followed in Gathering Evidence

The method of gathering evidence to determine what the schools ought to teach about household materials will be discussed here briefly to illustrate the nature of the evidence needed and the method of using it in the investigation. The data collected in the first general survey of economic life were organized to help discover what information concerning household materials was to be sought. It appeared that it would be necessary to find out exactly what the important household articles were, whether they derived their importance from their place in the budget or from their effect on health and comfort. It was essential to know what is wrong with the habits of selection and purchase of household articles, whether the people of our nation select inferior goods, whether they select unnecessarily expensive goods, or whether there is ignorance as to the relative value of household commodities. It was helpful to ascertain the common trade practice connected

with the sale of household goods, whether these practices mislead the purchaser and whether information concerning these practices will help the consumer to purchase household articles more intelligently. The raw materials that enter into the manufacture of these articles should be studied because they throw light on the quality of goods consumed by the American people. A study of the forms, units, and styles in which household materials are marketed should be made because it reveals facts which might be helpful to the consumer. It will be necessary to discover a vocabulary which would help the householder in the purchase and use of goods. The relative cost of materials should be studied to discover whether this information would aid the consumer in making economical purchases. In a word, it is necessary to gather such data as will show what will make the consumer more intelligent, efficient, and economical in the selection and purchase of household materials.

The next problem was to get hold of the data. The census report of manufactures by commodities, together with export and import figures furnished data giving the most important articles used in the household, according to amount of expenditure. This initial selection of household materials was checked up by the result of a nation-wide survey of 10,000 families undertaken by the United States Department of Labor, giving the relative expenditure for the important household articles.

Each commodity was then considered separately. The Census report gave indisputable figures concerning the raw materials which entered into the manufacture of each commodity. The relative value of these raw materials was checked up in technical books and articles dealing with the industry under consideration. It was, therefore, possible to ascertain whether the country as a whole was consuming the expensive or inexpensive articles, the durable or non-durable, the good or the bad. The Census report also furnished a list of the products of each industry and the extent of consumption of each product. Thus it was possible to ascertain in terms of products such as carpets, lamps, paper, wood, metals, etc., exactly what the nation consumes.

When the basic material had been collected, it was then necessary to read all the available literature that pertained to the present habits of purchase and use of commodities as well as to proposals for the improvement of habits of purchase and use. Surveys and investigations of practices in the home were used to get figures describing the actual household conditions. Data were sought giving the results of experiments in the use of the more important household articles, as well as other helpful, common, simple, technical information concerning household goods with which technical men are very familiar but about which the general population is ignorant.

Bibliographies, especially those prepared by the Library of Congress, are available on many industrial subjects and these were always used. The *Industrial Arts Index* is a comprehensive compilation of references on industrial subjects which was carefully consulted for every commodity discussed. For certain general statements and figures concerning the industries, *Crane's Market Data Book and Directory* was always consulted and often gave some good leads. Without it the many trade journals which it lists could not have been consulted in connection with the study of every commodity. The Tariff Information Surveys which were prepared by the United States Tariff Commission, undoubtedly to get intelligent thinking concerning tariff revision, are of great value to the consumer and to the student. In this series of pamphlets is contained a description of the industry, the raw materials, the products, trade practices, extent of production, exports, and imports, and other related material for every important commodity consumed in this country. A similar series of pamphlets limited to 57 important commodities was prepared by the War Industries Board under the direction of W. C. Mitchell, of Columbia University. These were used parallel with the census figures and literature describing raw materials, products, and processes.

For many commodities there are studies and pamphlets prepared by the several federal departments. Among these, the Farmers' Bulletins were most frequently used. The United States Bureau of Standards has published many circulars and technical papers which are exceedingly practical and illuminating and should



be very widely used by the public. Circular 55, "Measurements for the Household," and Circular 70, "Materials for the Household," were especially helpful.

### Curriculum Objectives Concerning Food Consumption

The first illustration of the method proposed here will be concerned with food consumption. The available evidence as to the food habits of our nation is of two kinds. The first is the statistical data furnished by the federal departments, chief of which is the Census Bureau, giving gross and per capita figures of food production in terms of quantity and money value for the entire nation. The second is the data reported in food studies of communities made in some cases to ascertain the standard of living of a community and in others to ascertain the habits of consumption in general or with respect to special food commodities, such as milk. All the evidence of the first type for the years from 1911 to 1918 has been tabulated and converted into terms of the food elements by Raymond Pearl, in a noteworthy volume entitled *The Nation's Food*. The evidence of the second type used as a basis for our curriculum recommendations concerning food consists of a dozen or more investigations of dietary habits covering a large variety of communities and nationalities. The data showing what foods the people of our nation actually consume were compared with figures contained in the most reliable standards of food consumption. This comparison showed that our curriculum should include the development of such habits, knowledge, and attitudes as will increase the consumption of green vegetables, fruits, and raw milk and decrease the consumption of meats.

The data showed that over nine-tenths of the total nutritional intake of our population consists of beef, pork, the grains, dairy products, sugar, potatoes, vegetable oils, poultry, and eggs. The conclusion from these data is, clearly, that importance in the selection, purchase, preparation, and storing of foods should be given to the grains, meats, dairy products, vegetables, sugars, and eggs, in accordance with the degree to which they supply the food wants of the nation.



A study of the income of the people of the United States in relation to the cost of food showed that more than half of the population of our nation is in great difficulty of extracting the daily food requirement. In spite of this, the data showed conclusive evidence of money waste in the selection of foods for the American dietary. The fats and meats which are relatively high in cost were consumed in excess of the standard, while the legumes and potatoes which are relatively low in cost were underconsumed. The conclusion here, for the curriculum-maker, is to introduce such content as will develop the habit of purchasing the less expensive protein, fuel, and ash foods.

### An Illustration Concerning Rent and Housing

The next illustration of the method proposed here will be concerned with rent. Fifty-four and four-tenths percent of the families of the nation pay rent. It is important that these families should know something about the factors that determine rent and the value of the land upon which they live. Rent is the money problem applied to shelter, as price is the money problem applied to food. The empty cry of profiteering, no matter how justified, is a very feeble weapon in the hands of the tenant. If the tenant is to have any effect upon rent he must have knowledge of facts and figures concerning the cost of building materials, the cost of labor, interest rates, and taxes. This information is available in public documents. Labor unions have been able to obtain fair wages because their leaders ceased to make vague sentimental pleas and have developed the technique of using documentary evidence to define in detail the cost of living and the distribution of income of production. W. F. Ogburn<sup>1</sup> gathered data giving the house rents paid by families in 92 cities. The figures thus obtained were compared with the standard rental proposed in several reliable studies. It appeared that a large proportion of the families of the nation could not afford to pay the rent necessary to live in a standard home. By comparing the incomes of the families which could not pay the standard rental with a table of distribution of incomes among the families of the United States prepared by W.

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<sup>1</sup>*United States Monthly Labor Review*, Sept. 1919, p. 30.

I. King, it was discovered that 25 percent of the population of the country must perforce live in homes which are below the standard. Obviously, this is an economic and political problem about which sound thinking can be secured only if the schools of our nation will encourage fair and honest consideration of the conditions and remedies which affect rent.

The low average rent found by W. F. Ogburn and in the numerous surveys which were studied, showed, further, that it is impossible for many families to live in homes with sanitary requirements which we have come to associate with decent living. His study showed that, while the difference in rent between a 4-room and a 5-room apartment was \$ .79, the difference in rent between an apartment with a bath and an apartment without a bath was \$5.13. It is apparent that the ability to pay rent bears a relation to the sanitary equipment of a home. Since it is indispensable that people shall keep their bodies and their homes clean, it is necessary in certain localities to train the people to improvise certain sanitary equipment, such as water heaters and portable bath tubs, instead of exhorting them to keep clean and to take a daily bath.

Concerning the selection of a home, it was found that certain important factors of which the average consumer is generally ignorant, have a great deal to do with a desirable home. For example, it was found that on one square block the value of the most expensive lot was five times the value of the cheapest lot. On the other hand, the value of the house on the more expensive lot was only twice the value of the house on the cheaper lot. Obviously, the tenant in the house situated on the more expensive lot was paying for location out of reasonable proportion. Such a mistake could be avoided by a tenant who established the habit of ascertaining the facts concerning the value of land and the value of the house on the land in the public documents of any community.

### An Illustration Concerning the Fuel Problem

Certain habits concerning preservation have penetrated the thinking of the people of our nation, and there is evidence that these habits of mind have modified the conduct of our people. The preservation of the race, of the nation, of literature, of our national

parks, and the like, have gained acceptance in our institutional and governmental life. The needs concerned with fuel preservation have only begun to stir the thinking of our people, much less their inclination to do something about it.

Chester G. Gilbert and Joseph E. Pogue, of the United States National Museum, say that "this country has within its reach the means for effecting a saving in the matter of its energy supply of well over a billion dollars a year."<sup>2</sup> Most of the waste of energy considered here may be charged to industry, but it is reasonable to assume that industry will take steps to eliminate waste sooner than the body of domestic consumers. Indeed, all research and scientific skill thus far, in America, has been applied to the conservation of fuel in industry.

There is an enormous waste of food in this country but the waste of fuel is comparatively much greater. Concerning the waste of coal, D. M. Meyers, who was connected with the United States Fuel Administration, writes: "If all the well known and well tried methods of fuel conservation were put into effect throughout the United States, the resultant saving would amount to 75 to 100 million tons per year in coal alone," which amounts to 450 million dollars in money value.<sup>3</sup> The coal supply of our nation is not inexhaustible. The most conservative estimate puts the available reserves of coal at 5,500 times the present annual consumption.<sup>4</sup> Anthracite coal at the present rate of consumption will be exhausted in one hundred years.

The recovery of natural gas, which is more than 70 percent of all gases consumed, is comparatively small. In connection with the production of oil there has been little effort to conserve the gas extracted. In the gas fields, proper, the small leaseholds and competing wells cause hasty extraction. It is important to conserve natural gas, because it costs only one-third as much as artificial gas and is twice as good.<sup>5</sup> When the gas reaches the

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<sup>2</sup>C. G. Gilbert and Joseph E. Pogue, "The Energy Resources of the United States: A Field of Reconstruction," 1919. *Smithsonian Institution, Bulletin* 102, Vol. I, p. 1.

<sup>3</sup>*Steam*, July 1920, p. 3.

<sup>4</sup>Ernest Owen, "Energy resources of the world and their utilization," *Chemical Age*, July 1921, p. 284.

<sup>5</sup>Gilbert and Pogue; *Energy Resources of the United States*, pp. 50f.

2,400,000 consumers, they use only 20 percent of the amount received. The rest is wasted.

The comfort of all the rural homes and of many city homes is dependent upon petroleum. The operation of the machines in industry and of automobiles, of which there are one to every twelve inhabitants of our country, is also dependent upon petroleum. A committee of the American Association of Petroleum Geologists and the United States Geological Survey have estimated that nine billion barrels of oil recoverable by methods now in use remained in the ground in this country on January 1, 1922. This quantity will satisfy the present requirements of the United States for only twenty years.<sup>6</sup> Less than 25 percent of the petroleum underground reaches the pipe line. If the losses involved in improper and wasteful methods of utilization are subtracted, the recovery factor becomes perhaps as low as 10 percent.<sup>7</sup> Nearly 30 percent of the heat of the original gasoline is lost thru the exhaust of automobiles. A careful adjustment of carburetors would save about 600,000,000 gallons of gasoline per year. The Bureau of Mines estimated that 25 percent of the fuel oil burned in the United States, 40 million barrels, could have been saved by careful operation of boiler plants.<sup>8</sup>

### An Illustration Concerning Household Materials

The next illustration will deal with a phase of furniture consumption. Data collected by the American Hardwood Manufacturer's Association from 202 manufacturers of furniture,<sup>9</sup> giving the consumption of hardwood in the furniture industry in 1920, show that, of all woods used by furniture manufacturers, mahogany comprises a little over one percent and walnut a little over two percent. An investigation of trade practices reveals the fact that birch can be finished like mahogany and that gum wood is manufactured to appear like walnut. Our data show that whereas mahogany and walnut are used in about 3 percent of the

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<sup>6</sup>Mimeographed Report, U. S. Geological Survey.

<sup>7</sup>Gilbert and Pogue, *Energy Resources of the United States*, p. 69.

<sup>8</sup>Walter U. Polakov: "Oil," *New Republic*, June 14, 1922.

<sup>9</sup>*Crane's Market Data Book and Directory*, 1921, p. 193.



furniture, birch and gum, which can be made to appear like the former, are used in 36 percent of all the furniture. It is therefore obvious that it is important to be able to distinguish birch from mahogany and gum wood from walnut.

There are other trade practices, the ignorance of which is a great hindrance to proper selection and purchase of furniture. For example, the practice of putting a veneer of expensive wood over a foundation of durable but less expensive wood has its advantages, but this should be known by the purchaser to help him to determine a fair price. The common practice of printing the grain of quartered oak on other woods can be very deceiving, particularly to the workingman, unless he learns to distinguish the print from the genuine quartered oak.

In order to compare the prices paid for furniture by about 6,000 families in 36 northern cities reported in the survey of the United States Department of Labor<sup>10</sup> with prices of medium price furniture during the same year, the writer went through the files of the *New York Globe* for August, 1918. The month of August was selected because it is the period of annual furniture sales, and prices could be found in abundance. Incidentally, a tabulation of the names of furniture woods mentioned in the advertisements was made. This table is an interesting reflection of dealers' practices and popular ignorance about furniture. It has been shown that mahogany and walnut are used in about 3 percent of the furniture and birch and gum are used in 36 percent of the furniture. We should expect, therefore, that some similar proportion should appear in advertisements. The facts, however, are startling. "Mahogany" is advertised 149 times; "walnut" is advertised 69 times; "birch" is mentioned twice, with "mahogany finish" tacked on to it; and "gum wood" is mentioned three times, and that only with "American walnut finish" after it. Only in a few cases was it clear whether the furniture advertised as "mahogany" meant solid mahogany, mahogany veneer, or mahogany finish on birch wood. The term "mahogany finish" was mentioned thirteen times. It seems plain from these advertisements that they were designed deliberately to mislead the purchaser or to exploit his

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<sup>10</sup>*United States Monthly Labor Review*, January, 1920, p. 31.



ignorance of furniture woods. If there is any justification at all for these doubtful practices by furniture dealers, and one doubts if there is, it is that they are forced into them by the purchaser, whose knowledge of furniture woods consists of a few names. How long this ignorance of expensive and significant commodities shall continue depends upon the present curriculum-maker.

It was possible to ascertain the quality of the furniture which the great mass of people were in the habit of buying. The chief species of wood used in American furniture manufacture were classified as to durability, according to data furnished by the United States Bureau of Standards.<sup>11</sup> It was found that 9 percent of the wood used in furniture which was commonly bought was very durable, 35 percent was durable, 18 percent was intermediate, and 38 percent was non-durable. That is, on the basis of figures collected from 202 manufacturers, 54 percent of the wood which enters into the furniture used by the American people is not durable. It is clear that the quality of furniture bought by American people is too poor to be economical in the long run. For the curriculum-maker this fact indicates that the budgetary habits of the people of our nation must be readjusted with a view to improving this condition.

### An Illustration Concerning Leather Goods

The next illustration concerns the purchase of leather goods. The demand for leather is greater than the domestic supply, and the price of leather goods is often above the means of our population which is a wage earning population. Consequently, there is a market for a durable material having a cloth base to be used in the manufacture of bags and upholstery. The problem for the consumer, therefore, is not to taboo coated cloth, but to avoid being misled as to the nature of the article and its price. The person of limited means should know when it becomes impossible to purchase leather and should then proceed to buy the most durable and attractive coated cloth.

There is a thriving industry of imitation leather goods yielding products to the value of \$50,000,000 annually. A leading and

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<sup>11</sup>United States Bureau of Standards, Circular No. 70, p. 50.

apparently reliable concern which sells *leather-cloth* states that nine-tenths of all "leather-covered" furniture is upholstered with leather-cloth and that most automobile makers use it. It is also used extensively in trunks, cases, and bags. The industry has succeeded in reproducing the grains of alligator, pig skin, box calf, morocco, and seal with sufficient similarity to deceive the average person. Imitation leather is chiefly a cloth base with one or more coatings or pyroxilin, commonly known as celluloid, upon which is pressed a leather grain. Some of these leather fabrics are made of paper and rubber. The trade names under which they are sold when the retailer does not wish to mislead the purchaser are mule-skin, pyroxilin leather, leatheroid, fabrikoid and leatherine. It is obvious, however, that even these names have a tendency to mislead the purchaser.

### Phonographs and the Curriculum

The next two illustrations are concerned with products of comparatively recent origin. The first will deal with the phonograph and the second with the automobile.

There are six million phonographs abroad in the homes of the United States. Approximately every fourth home has a phonograph and the rate of increase of the purchase of phonographs as shown by census figures<sup>12</sup> indicates a much wider distribution of phonographs in the next few years.

It is obvious that the consumer should have some knowledge to guide him in the purchase and proper use of the phonograph. Although there are more than 150 phonograph manufacturers, only a few machines are well known and these are the ones which are most widely advertised. The inquiry made by the Bureau of Research and Information of the National Retail Dry Goods Association from which the data presented here are taken shows that customers buy advertised products only. They are guided by the paid publicity written for the manufacturers.

In 20 stores in the State of Maryland, 95 percent of the machines sold were Victors. In 19 stores in Ohio five-eighths of the

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<sup>12</sup>Confidential Report, Operation of Phonograph Departments in Department Stores, Bureau of Research and Information, National Dry Goods Association, p. 1.

phonographs sold were Edisons and three-eighths were Columbias. In the other states the situation as reported in the study was the same. One can picture the purchasers in a locality holding to a product, undoubtedly well advertised, with almost superstitious tenacity. Thus communities have been kept in prolonged darkness concerning the merits of competing instruments. The most recent machine which has been widely advertised is the Edison machine. This machine is a departure from the common types in fundamental parts, yet the prospective purchaser has very little background for a comparison or for an accurate understanding of the comparative importance of the sales arguments of dealers whom he may canvass. In New York City in spite of the variety of machines advertised it is quite common to hear any type of phonograph called a "Victrola," which is the trade name of one very popular instrument. This is an example of ignorance induced by commercial propaganda and abetted by neglected economic education.

### The Automobile and the Curriculum

The illustration concerning the automobile is included here not so much because of its vital importance to the average person, but because it illustrates markedly the thesis which is here supported. No one will dispute that the automobile occupies a negligible place in our modern elementary curriculum. Curriculum-makers in all probability have made wild guesses as to the extent of the use of the automobile, its economic importance, its relation to the great mass of people. As a result they have allowed their speculations to relegate automobiles to the curricular scrap heap. Possibly the curriculum-makers have not stirred since the last census taking. They are timorously awaiting the next decennial renovation of the course of study, but it is doubtful whether they will take the trouble to make the painful research necessary to discover and interpret existent modes of living as a basis for curriculum change. However, let us proceed with the facts.

The value of the products of the automobile industry, amounting to over three billion dollars, is second in magnitude. In 1921, 10,449,785 passenger cars and motor trucks were registered. Leonard P. Ayres has worked out the following table showing the num-

ber of people per car in use each year. It gives the very conservative figure of one car to every twelve persons in 1920.<sup>13</sup>

People per Car in Use in the United States Each Year

<i>Year.</i>	<i>No. of People per Car.</i>	<i>Year.</i>	<i>No. of People per Car.</i>
1912.....	114	1917.....	20
1913.....	78	1918.....	18
1914.....	57	1919.....	15
1915.....	46	1920.....	12
1916.....	30		

Analysing these figures further, Ayres concludes that not far from half the white American families already have cars which includes a large number who can barely afford to purchase and run their cars. Nearly half of all the motor vehicles in use are Fords. This indicates that the automobile bears a close relation to a great mass of families of medium income. Sixty-two percent of the farmers have cars, according to a survey of 10,000 rural families made by the Department of Agriculture. The figures showing the expansion of automobile ownership indicate that we may expect a wider use of automobiles, since, as Ayres points out, the point of saturation has not yet been reached.

In certain sections of the United States the introduction of the automobile into the curriculum would be premature, but in the Pacific States, the West North Central States, the Mountain States, and the East North Central States, where the number of people per car is 7, 8, 9, and 10 respectively, it would be short-sighted to fail to offer some training in the purchase, use, and care of an automobile.

### CONCLUSION

I have tried to indicate in this paper that we need to use quantitative evidence as a basis for curriculum revision and have pointed out that such evidence is especially available at this time. I have attempted, briefly, to illustrate a method of curriculum revision requiring the cooperation of several experts. I have indicated that the initial data for the revision of the curriculum are to be col-

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<sup>13</sup>Leonard P. Ayres. *Automobile Industry and Its Future*, 32 pages.

lected by the expert who, for want of a better name, was called the "educational sociologist." I then proceeded to illustrate how the educational sociologist should collect his data with respect to the economic aspects of life. Several examples giving both evidence and objectives arising from this evidence were presented concerning food consumption, rent, the fuel problem, furniture consumption, leather goods, the phonograph, and the automobile. In a larger work I hope to present a body of recommendations for the revision of the curriculum which will help our people to perform effectively the economic duties of life.



## SECTION IV. CRITIQUE OF METHODS AND RESULTS OF REORGANIZATION

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### CHAPTER XVII

#### A CRITICAL APPRAISEMENT OF PROPOSED REORGANIZATIONS

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The time between my receipt of the foregoing articles and the necessary printing of the *Yearbook* has been so short that my contribution is in serious danger of being "short" in many respects. At the best it is a record of first impressions received from a hasty reading of the numerous manuscripts.

#### SIGNIFICANCE OF THE PROBLEM

Many years ago I called on the Minister of Education in Berne, Switzerland, to inquire what problems in the elementary field of instruction were then under special consideration. The First Assistant to whom I was assigned, after making sure of my question, replied without apparent embarrassment that there weren't any. And my later visits to some of the Swiss Schools seemed to justify his statement.

At that time—some thirty-five years ago—it might have been difficult for most of our own school superintendents to have given a very different reply to that inquiry. But there is no question about the matter now. There is a large number of problems that our teachers are consciously attacking, among which the Reorganization of the Curriculum is possibly the most prominent and the most vital.

#### AGES OF PERSONS FOR WHOM CURRICULA ARE CONSIDERED IN THIS YEARBOOK

The entire range of ages for which curricula are considered in these articles extends through all the years from the primary

into college. Professor Horn proposes a course in history for the first six grades, and Professor Coss a college course. The other writers cover intervening ages; but the years on which attention most fully centers are those of the junior high school.

#### THE SUBJECTS OR STUDIES TREATED

Although the title of the *Yearbook* is "The Social Studies in the Elementary and Secondary School," the subjects considered go considerably beyond history, geography and civics. Not only do sociology and economics receive much attention, but English is extensively discussed by Mr. Hill, and the particular problems in Mr. Harap's article are Food Consumption, Rent and Housing, Fuel, Household Materials, Leather Goods, and Phonographs. After reading these latter articles one cannot help but wonder why the phrase "Social Studies" should tend to be largely confined to the three subjects named. Why should not any subject that leads the student directly into social problems be regarded as a social study? For instance, might not physical education and household arts be just as worthy of that title as history and geography?

#### THE PRINCIPAL PHASE OF CURRICULUM-MAKING CONSIDERED

No fewer than six or eight courses of study—whole or partial courses—are contained in these articles. But all of them are offered very tentatively, and usually as illustrations of what a given method of procedure in curriculum-making has brought about. The chief interest of the writers at the present time is in the method to be followed in selecting subject matter, rather than in the subject matter itself.

This interest in the method of procedure marks one of our greatest advances in education in recent years. For generations we have been making curricula; and it has been so easy a task that anyone could attempt it, and anyone has. Now at last we are inquiring how it ought to be done.

We have been slow; but people have always been slow in their appreciation of method. The Scientific Method was a very late discovery in the history of the race. And even now the graduate student in the university, often occupying sixteen to eighteen years

in study, spends his final year, if he is a candidate for a Ph.D., in finding out the best method of studying some particular problem—in short, in finding out how to study. Presumably the one who is not a candidate for this degree does not need such knowledge. The great majority of college graduates have never been given even a fragmentary course in the method of studying anything. We may congratulate ourselves, therefore, that the method of curriculum-making is the principal question in this *Yearbook*.

### POINTS OF GENERAL AGREEMENT

Such a variety of matters is discussed in these papers that many of them cannot receive attention in this brief appraisal. Indeed, owing to my limit in space and time, I have left one or two of the chapters almost entirely out of consideration.

First of all, it is striking to what extent practically all the writers are in agreement on very vital matters.

1. *The revolt against encyclopedic education.* One of these matters concerns encyclopedic education. Comenius was ambitious to teach all men all things. As knowledge has increased, any hope of really attaining such a goal has decreased; yet the ambition has persisted ever since his day, as most of our courses of study and textbooks of the present day suggest. Broad information, learning, scholarship has been the accepted aim of instruction in practice down to very recent years.

These writers are together in declaring citizenship to be the aim. According to them, only such facts should be taught as have a reasonably evident relation to conduct. That means the rejection of large sections of studies that have generally been taught and the introduction of new sections in their place. It does not mean the repudiation of scholarship; indeed, in their estimation children are likely to acquire more and deeper knowledge through the change. But it does mean the subordination of scholarship to the higher and more needed end, citizenship. Evidently these writers are not afraid of a broad utility; they demand it. In this respect they are revolutionists.

2. *The acceptance of the 'problem' as the unit of subject matter.* A second very striking fact is the general acceptance of the

'problem' as the desired unit of organization of the curriculum. Says Dr. Harold Rugg: "Not the learning of texts, but the solving of problems is what we need. Our materials must be organized around issues, problems, unanswered questions which the pupil recognizes as important and which he really strives to unravel." This quotation is largely representative; and when one notes the variety of positions as teachers that the writers hold, such agreement marks a distinct advance in our commonly accepted educational theory.

About 1858 Herbert Spencer complained that instruction in England consisted too generally of names and dates and dead, unmeaning facts. The same condition prevailed in our country till some thirty years ago. Then the "Five Formal Steps of Instruction" were imported from Germany, opposing the teaching of isolated facts and grouping them around generalizations. While they effected a big improvement, they had one almost fatal defect; by accepting generalizations or abstractions as the center for organization, they tended to make the entire instruction abstract. The problem plan tends to remedy this defect, as the problem is a very concrete, specific expression of the learner's need.

3. *The demand for activities or practice.* A third striking point of agreement is found in the demand for "activities." Says Mr. Hatch: "No program for the social studies would be complete, however, unless adequate provision was made for a running fire of civic activities. I am now referring to the training that comes from the actual participation by the pupils in school or group activities when the objective is training in citizenship." Says Dr. Harold Rugg: "Adequate information, then, and practice in using it, both essentials of efficient social action in a democracy, are clearly desiderata for social science courses."

A great advance in the meaning of a study is here urged. Twenty years ago theory alone commanded respect; and to the extent that any subject included practice, it was an object of suspicion. Manual training, involving much handwork, was opposed by many as not properly educative; so, also, was domestic science, domestic art, and a number of other subjects.



The organization of the Boy Scouts and other similar movements then led to the acceptance of extra-curricular activities as a part of the general school program. Now there is a tendency to regard practice as a necessary part of any properly educative subject, and to recognize the household arts and industrial arts as fair standards, in their balance between theory and practice, for all subjects. The writers of these articles do not fully stand for this latter conception, but they seem to me to approach it very closely.

The opposition to these three points is found chiefly in the position of only one of the authors, and then not with reference to the junior and senior high schools, but with reference to the first six grades. That is Mr. Washburne. He says: "As a foundation for all more advanced courses in the social sciences we usually require some knowledge of the basic facts of history and geography.... There are, in theory at least, those who would teach even these facts in a series of contemporary problems, explained by past events; but there is little justification for this extreme view, either from the standpoint of interest or of use." He then sets to work to discover the most important persons, places, dates and events, in regard to which children in the fifth grade should be informed, and collects, in all, "1447 items." These items constitute a skeleton, and when that skeleton is properly clothed with facts, we have a course of study consisting of "Basic Facts needed in History and Geography," good enough for so young children.

I believe that Mr. Washburne's method of procedure in determining the relative value of subject matter has important merits. But his point of view here is encyclopedic out and out; it denies the value of problem work for young children; and it seems to disregard the demand that *doing* be a prominent part of any course of study for them. Evidently in his mind the principles that should guide one in making curricula for the high-school age, do not necessarily hold for younger children. The first six years of school constitute the tool period of education during which a far more mechanical procedure may be expected. It might not seem necessary to call attention to such dualism in theory, did not many other educators show a similar tendency.



## PROPOSALS IN REGARD TO THE METHOD OF MAKING CURRICULA

1. *Disregard for past efforts.* How much help do these authors expect from past efforts in curriculum making? Dr. Harold Rugg replies in these words: "Although new histories, geographies, and community civics books are coming from the press month by month, they do not represent the kind of reorganization demanded by the protagonist of the new order. Those materials are merely 'old wine in new bottles.' The covers and titles and section headings are new, but not the detailed materials and activities." Similarly Dr. Horn, in speaking of textbooks, says: "One finds it difficult to accept the theory that a crude sort of trial and error has operated to include valuable subject matter and to exclude material of little value. That such an influence has made itself felt to a very great degree is made to seem unlikely when one examines the texts in the light of the more direct evidence as to what the values in history really are." The general tendency, then, is to show scant respect for what has already been accomplished in curriculum making; the first step in the proper process is to cast aside the rubbish of the past.

While no one will accuse these authors of excessive modesty, any one inclined to complain that wisdom seems to be born with them, must face the responsibility of pointing out wherein they are wrong.

2. *The blending of history, geography, and civics.* Not all the writers are desirous of blending history, geography, and civics. For example, Dean Judd states: "It has been suggested that social studies are nothing but a branch of history. Indeed, the historians are many of them convinced even to-day that social studies ought to be turned over to them. But history is organized around certain relations of sequence and national control which are not at all relevant to those relations of cooperative living which the social studies must emphasize. It is no criticism of history to say that it will not serve the purpose of training pupils in social science; it is merely a recognition of the fact that history has its own centers of systematic organization."

On the other hand, Dr. Harold Rugg proposes that "Current modes of living, contemporary problems, and their historical back-

grounds can be learned more effectively through one unified social science curriculum than through the separate school subjects, history, geography, civics, and the like. A general course brings to the teacher easily, and at the time they are needed, all of the necessary materials of instruction, irrespective of how they have been catalogued in the past.

"Let us make no mistake about this proposal, however. This is not an attempt to merge the established subjects. Rather than that, the procedure we have employed starts with no interest in the established order. It completely disregards current courses. Only one criterion is employed in selecting the content of the courses: its contribution to present living."

While there are, thus, opposing views about the independence of the social sciences, there are enough references to their union one way or another to regard the tendency to unite them as somewhat strong.

3. *The recognition of society as the source of values.* Nearly all of the writers either tacitly or openingly turn to society as the source of value in deciding the worth of proposed topics or problems for the curriculum. Dr. Ernest Horn, in Chapter XIV of this volume, presents a very important discussion of the different techniques adopted by investigators in determining the most desirable subject matter. After a brief consideration (1) of the newspaper-magazine method, (2) of the method consisting of an analysis of political platforms, (3) of the method of judgments, and (4) that of the opinions of representative citizens, he points out the weaknesses of each single plan and proposes a union of them all. This analysis of the method of procedure seems to me, possibly, the most valuable portion of this *Yearbook*.

4. *The several factors in curriculum-making.* If I have interpreted the writers correctly, then, most of them show a tendency to look to society alone for the original selection of subject matter. Only what has received extensive social sanction is, in their minds, worthy of a place in a possible curriculum. But Mr. Harap in his contribution at least suggests a broader basis of selection. He names five factors that condition the curriculum, viz., (1) the fundamental elements of effective social life, (2) the nature of

the learner, (3) the laws of learning, (4) the nature of the teacher, (5) the attitude, resources, and limitations of the community.

Possibly Mr. Harap agrees with the other authors in making number one here basal, to which the other four are entirely subordinate. But at any rate numbers four and five call attention to factors which most of the others seem not to have considered.

#### APPARENT WEAKNESSES IN THE PROPOSALS

1. *Neglect of past experience.* Chapter one is excellent in showing what the social sciences heretofore have *not* done. Although the statements are very strong and sweeping, it is difficult to disprove most of them. Yet that person is bold, indeed, who assumes that no real help toward curriculum-making has been contributed from the past; it hardly seems reasonable. And one's doubt is strengthened when one examines some of the proposed curricula in the light of the past.

Take, for example, the pamphlet on "Immigration" proposed by Messrs. Rugg and Miss Schweppe. It is cited here because it is probably better known than other recent proposals along this line. This pamphlet, entirely ignoring the past, proposes a few weeks' course in which civics, geography, and to some extent history, are typically merged. What kind of geography is it? Aside from brief references here and there to geography, there are eight pages devoted rather exclusively to that study. Pages thirty-five and thirty-six are two of these, under the heading: "Some Facts about Italy and Immigration." The treatment is as encyclopedic as the heading would suggest, and is on about the same plane as the average texts that are so strongly condemned in Chapter I. Page fifty begins with the heading: "Geography we should know about the countries from which our immigrants come," and then follow two pages given to location. The teacher is directed as follows: "Give a test on European place geography at this point. Pass out blank mimeographed maps of Europe and have the pupils do the following exercise. It is important that the pupils should have a clear idea of a few basic place-geography facts." A list of twenty countries of Europe is then given to bound and drill upon. This is as utterly barren subject matter as can be found anywhere.

No modern teacher of geography would stand for such instruction. Similar, but, if possible, worse subject matter, is found on pages eighty, eighty-one, and eighty-two under the caption: "Ports of Europe from which Immigrants Sail to America." Many of the questions there I cannot answer myself, nor do I see any reason for wanting to answer them. If these eight pages are a fair sample of the geography to be gotten by merging the social sciences, then deliver us from such merging! If the authors of this pamphlet had been acquainted with modern geography teaching, they could hardly have proposed such subject matter as this or such a method of procedure. I strongly suspect that modern teachers of history would make similar complaint with regard to that subject.

2. *Neglect of the learner's point of view in original selection of subject matter.* How much shall the point of view of the learner affect the original selection of subject matter? As nearly as I can judge, there is a strong tendency in these articles to regard adult society as the sole source of value. The outline of any curriculum is to be determined by discovering what counts among adults. The facts thus obtained that the learner cannot comprehend or appreciate may be discarded; but he, himself, is not a positive factor in the original selection. Proof of these statements is found in the fact that the writers so generally turn to newspapers or magazines or political platforms or to the judgments of representative men—rather than to children—to find a basis of selection. The extreme to which this method may carry one is illustrated by the inclusion, in Dr. Rugg's pamphlet on "Immigration" of a list of incoming and outgoing steamers and transatlantic mails, together with the day of week and hour of departure. This list is supposed to be consulted by children with reference to the time for mailing letters. It is true that such lists occupy much space in the metropolitan newspapers of New York City and have therefore, according to Dr. Rugg's standards, high social value. But of what use is such matter to children?

The discussion of the Report of the Committee of Fifteen held at Cleveland in 1894 was well summarized at that time by the statement: "What we have been having is a curriculum made out from the point of view of the philosopher to be forced on the



child." "What we want is a curriculum made out from the point of view of the child to be forced on the philosopher." Ever since that time there has been a strong tendency to find at least a good part of the curriculum from within the child. Even though such activities as paper cutting, construction of bird-houses, and moulding of articles out of clay have little or no significance for adults, they might still be prominent parts of a curriculum because they are intimately related to children's interests and can lead to valuable self-expression. My complaint is that this issue has not even been recognized by several of the writers, in spite of the fact that their main interest has been in the method of procedure in curriculum-making.

3. *Neglect of local conditions.* All curricula are made for final use in particular schools. How influential should local conditions be in preparing a curriculum for a particular school? Classroom teachers are expected to pay much attention to the individuality of children; should curriculum-makers show much regard for the individuality of schools?

Eight principals of schools in New York City have recently banded together to work on curricula for their schools. The children in one of these are 98 percent Italian and those in another are largely Polish. The home conditions of the children vary greatly in the eight districts, as do also the geographical environments of the schools, their material equipments, and the training, tastes, and abilities of their teachers.

To these principals the unit in curriculum-making is the individual school rather than the entire system; and each wants subject matter that is much influenced by the peculiar conditions of his school. Supt. Ettinger has given freedom to them to make curricula as different from one another as the varying conditions seem to require.

It is a difficult and extensive task that these people are undertaking, requiring several kinds of local surveys in addition to such as are usually made. Of course, help will be sought, particularly from those persons who have had opportunity to specialize in the making of curricula. And the method of procedure will be the question on which help will be most welcome.



Since this *Yearbook* is primarily concerned with the method of procedure, these principals will no doubt turn to it eagerly for suggestions. What suggestions will they receive? Mr. Harap has named the several factors that he believes they must consider; but beyond that, little attention is given to local conditions. The authors have considered no particular school at any time. They have acted on the assumption that the best way to make a curriculum for a school is to ignore all particulars.

If these principals are on the right track—and I believe they are—then one of the prominent factors in curriculum-making has been sadly slighted in this *Yearbook*.

4. *Over-reliance on subject matter for developing citizenship.* Some nine courses or extensive samples of courses are offered in this *Yearbook* as means for developing a better citizenship. In the minds of the authors young people need to be far better informed on social problems, and informed in a way that includes the use of knowledge acquired. Dr. Harold Rugg well summarized the prevailing attitude in these words: "Adequate information, then, and practice in using it, both essentials of efficient social action in a democracy, are clearly desiderata for social science courses." That is excellent.

But is there not another very important factor in a course for citizenship that has been largely, although not wholly, overlooked? That concerns the students' consciousness of the right method of thinking in this field.

I recently observed a fifth-grade recitation where the children were having a lively discussion of the Sahara Desert. They read statements from a dozen authors and showed numerous pictures. At the end of possibly fifteen minutes, the teacher interrupted them by saying: "Suppose that we summarize here. What do you do when you summarize?" Again later, she said: "Let us summarize again. When you do that, do you attempt to recall all that has been said, or only a part of it? If only a part, how do you know what part to select?"

No doubt she had it in mind at some later period to say: "To-day I shall let you suggest the proper times to stop for a summary. How will you know when such a time comes?" Quite possibly,

too, she would add: "In studying a map of any region, such as this map before us of the Sahara Desert, you should have the habit of estimating the distances you are talking about according to the scale. For example, how far is it from Algiers to Timbuctoo? Also, in studying surface, you should hunt up good relief maps and determine the varying altitudes according to the legend. For example, what facts about the height of sand dunes and mountains in the Sahara can you find from the relief map before us?"

As the instruction was proceeding, I concluded that from one-quarter to one-third of the time of this class in geography was being devoted to a consideration of method, to bringing into the consciousness of the children the rules that should guide them in the study of this subject. No doubt the teacher planned to examine them for promotion on their knowledge and practice of these rules of method as well as on the facts of the subject matter.

For many years Professor Henry Johnson, of Teachers College, has made method of study very prominent in his teaching of history, laying particular emphasis on the ways in which reliability of statements may be judged. I have not forgotten that Dr. Rugg demands much practice in using the information gained, and that both he and Mr. Hatch stress the student's method. But none of the articles in the *Yearbook* proposes a carefully digested series of rules of study for the guidance of the student, which might become a prominent part of the curriculum for citizenship just as the subject matter facts are a part.

The point that I wish to make is that better information on social questions and practice in applying it are insufficient. Many intelligent persons are inclined to believe that a proper way of studying social problems is now our chief need, and that unless that way is itself made an extensive subject of study, it will never be mastered. The best 20 percent of the teachers of our country to-day know the subjects taught in the elementary school very well, and so far as their many facts pertain to conduct, they know how to apply them. Yet not one in a hundred of them knows how children should study them. The fact that method of curriculum-making is only now beginning to receive proper attention suggests

how slowly method comes to consciousness; and if young people are to develop ability to study the new social problems that are constantly arising, the elements that constitute good procedure must become strongly established in their minds.

To my mind this is the most serious defect in the *Yearbook*. It is true that no one can now safely describe in detail the method that children should follow in studying any school subject. But the need for help in this direction is so great in the elementary school, and in the high school in connection with supervised study, that it is too bad that these writers did not make an attempt toward a course in children's method.

### CONCLUSIONS

On the whole, what is the value of this *Yearbook*? To my mind it is very great. The common abandonment by the authors of the encyclopedic point of view in curriculum-making, their acceptance of the problem as the unit of organization of subject matter, and their demand that a study include practice as well as theory, these will all have a great influence on our educational theory and practice. The courses of study proposed will likewise exert an enormous influence, for they are remarkably good examples of the application of modern theory to practice. Finally, the acceptance of method of curriculum-making as the great matter to be considered at the present time and the proposals in regard to that method must have the effect of centering attention on that problem in a way that will prove extremely profitable.

Certainly one tendency in the search for a proper method is sound; namely, to evaluate issues from the point of view of adult society. That has to be done. But when that has been well accomplished, the details by which those issues shall be clarified and solved are still very uncertain. When this fact is considered, and when one notes how many prominent factors in curriculum-making have been entirely ignored or seriously neglected by these authors, one is obliged to reach the conclusion that no method of curriculum-making has yet been proposed that is really worthy of being called scientific. At the best we can only say that progress is being made.

# APPENDIX I

## A SELECTED AND ANNOTATED BIBLIOGRAPHY

EARLE RUGG

*The Lincoln School of Teachers College, New York City*

### A. HISTORICAL DEVELOPMENTS

1. Clark, Edith M.: "The history curriculum since 1850." *The Historical Outlook*, Vol. XI, pp. 58-68. This article traces in an interesting way the main developments of the teaching of history since 1850.
2. Dawson, Edgar: "Beginnings in political education." *The Historical Outlook*, Vol. IX, pp. 439-441. This article presents evidence that, contrary to the general impression, there was a marked interest in and provision for civic instruction in American schools prior to the Civil War.
3. Judd, Charles H.: "The teaching of civics." *The School Review*, Vol. XXVI, pp. 511-532. This article traces important changes in civic instruction since 1870 through the significant school textbooks used at different times during that period.
4. Russell, William F.: "*The Early Teaching of History in the Secondary Schools of New York and Massachusetts.*" McKinley Publishing Company, Philadelphia, 1915. This monograph reports the evidence that history was a well organized subject of instruction in American high schools prior to the Civil War, and indicates that it was taught for much the same reasons that its advocates set forth to-day.

### B. COMMITTEE REPORTS

5. American Historical Association: "*Report of the Committee of Seven on the Study of History in Secondary Schools.*" The Macmillan Company, New York, 1899. A report that describes the status of history teaching in 1899 and outlines four "blocks" of history for high schools. This report determined school courses in history for nearly twenty years.
6. American Historical Association: "*Report of the Committee of Eight on the Study of History in the Elementary Schools.*" Charles Scribner's Sons, New York, 1909. A suggested syllabus in history and civics together with recommendations for its teaching, in grades 1-8. This report has been very influential in shaping instruction in elementary school history.
7. American Historical Association: "*Report of the Committee of Five on the Study of History in Secondary Schools.*" The Macmillan Company, New York, 1912. A report of a committee appointed to recommend needed changes in the Committee of Seven's recommendations of 1899. It suggested very few modifications.
8. American Historical Association and The National Education Association: "Reports of a joint committee on history and education for citizenship." *The Historical Outlook*, Vol. X, pp. 273-281; Vol. XI, pp. 73-83, 111-115; and Vol. XII, pp. 87-98, 119-143, 165-184, and 208-218. Various articles which report the progress of the Committee's work and proposed syllabi. They also include extended discussions of the Committee's "program."



9. American Political Science Association: "*Report on the Teaching of Government.*" The Macmillan Company, New York, 1916. A survey of the status of the teaching of government or "civics" in our secondary schools and colleges. Outlines a course of study in government for American schools.
10. American Sociological Society: "Tentative report on the teaching of sociology in the grade and high schools of America." *The School Review*, Vol. XXVIII, pp. 255-262. This brief report is chiefly a reiteration of the 1916 Social Studies Report and of the Reports of the Committee on History, and Education for Citizenship. It discusses what sociology demands of the social sciences in our schools.
11. The Association of Collegiate Schools of Business: "*Social Studies in Secondary Schools.*" University of Chicago Press, Chicago, 1922. A report of a Commission on the correlation of secondary and collegiate education with particular reference to business training. Surveys the present organization and teaching of the social studies in our high schools.
12. National Association of Secondary School Principals: "Report of the committee on social studies." *The School Review*, Vol. XXVIII, pp. 283-297. A brief survey of present practice in the teaching of the social studies other than history, based upon an analysis of typical school textbooks and upon questions asked of schools concerning their use of the texts.
13. National Education Association: "*Reports of the Committee of Ten on Secondary School Studies with the Reports of the Conferences Arranged by the Committee.*" American Book Company, New York, 1894. The first important committee report. It outlines school courses in the chief subjects and suggests the place of each in preparing pupils for college.
14. National Education Association, Committee on Social Studies of the Commission on the Reorganization of Secondary Education: "Report on the social studies in secondary education." *Bulletin 28*, 1916. United States Bureau of Education, Washington, D. C., 1916. The first committee report to emphasize the social sciences as a unit. Influential in broadening out our curricula in this field of citizenship training.

#### C. QUESTION BLANK INVESTIGATIONS

15. Davis, C. O.: "Training for citizenship in the North Central Association Secondary Schools." *The School Review*, Vol. XXVIII, pp. 263-282. A comprehensive and searching inquiry by use of the question blank concerning what 1200 American high schools are doing to train pupils for effective citizenship. It indicates that our high schools are not only emphasizing "reading courses" in history, civics, economics, and sociology, but are also directing and promoting "extra-curricular" activities as an essential part of citizenship training.
16. Gold, H. H.: "Methods and content of courses in history in the high schools of the United States." *The School Review*, Vol. XXV, pp. 88-100, 187-195, 274-282. Deals with the aims, character, content of courses, and methods of teaching history based upon a question blank study of 60 schools and an analysis of 24 printed courses of study in history.
17. Koos, Leonard V.: "Administration of secondary units." *Supplementary Monographs*, Vol. I, No. 3. University of Chicago Press, Chicago, 1917. Reports the results of a question blank study on the



time allotment, aims, and methods of teaching various subjects, including history, for North Central Secondary Schools.

18. Mississippi Valley Historical Association: "Report of the committee on standardizing library work and library equipment for history in secondary schools." *The School Review*, Vol. XXIX, pp. 135-150. This article reports the results of a question blank investigation of the collateral reading of history students and the equipment of high school libraries with respect to history for 520 high schools in 13 states in the Mississippi Valley. Recommendations are made.
19. Tryon, Rolla M.: "Materials, methods and administration of history study in the elementary schools of the United States." *Indiana University Studies*, No. 17. Bloomington, Indiana, 1912. A report of the status of the teaching of history in elementary schools based upon the results of a question blank survey of 29 states, with particular reference to Indiana.

#### D. STUDIES IN CURRICULUM-MAKING

20. Bagley, William C. and Rugg, Harold: "Content of United States history in the seventh and eighth grades." *University of Illinois Bulletin on Education*, No. 16, Urbana, Ill., 1916 (out of print). An analysis of 23 elementary United States history texts published between 1860 and 1912. Inquires what the minimal essentials in American history are and points out significant changes in content that were made during this period.
21. Bassett, B. B.: "The content of a course of study in civics." *Seventeenth Yearbook of the National Society for the Study of Education*, Part I, pp. 63-80. Public School Publishing Company, Bloomington, Illinois, 1918. An attempt to find, by analyzing the platforms of political parties, "the most significant and most persistent problems of the American people which seek solution through the machinery of government."
22. Hill, Howard C.: "The social sciences in the University High School." *The School Review*, Vol. XXVII, pp. 680-694. This article describes the social science courses that are being organized in the University of Chicago High School. The new courses include experiments aiming to correlate freshman history and English and to unify into one course American and Modern History.
23. Horn, Ernest C.: "The application of scientific method to making the course of study in civics." *The Elementary School Journal*, Vol. XIX, pp. 762-777. A summary of several studies which by their use of objective methods point the way to determining what the content of school courses in civics ought to be.
24. Horn, Ernest C.: "Possible defects in the content of American history as taught in the schools." *Sixteenth Yearbook of the National Society for the Study of Education*, Part I, pp. 156-172. Public School Publishing Company, Bloomington, Ill., 1917. A study that aims "to determine whether the present content of history is satisfactory if an important purpose in teaching history is to make pupils more intelligent with respect to the more crucial activities, conditions, and problems of present day life."
25. Rugg, Harold: "Needed changes in committee procedure in reconstructing the social studies." *The Elementary School Journal*, Vol. XXXI, pp. 688-702. An evaluation of committee procedure as the chief method of curriculum making. Discusses the values and services of committees.

26. Rugg, Harold: "How shall we reconstruct the social studies curriculum?" *The Historical Outlook*, Vol. XII, pp. 247-252. A review of needed changes in the content and organization of history and related social subjects; a critique of the report of the Joint Committee on History and Education for Citizenship, with a program for committee procedure.
  27. Schafer, Joseph, and Rugg, Harold: "An open letter and a reply on method and aims of committee procedure." *The Historical Outlook*, Vol. XII, pp. 247-252. An exchange of views on Mr. Rugg's analysis of the report of the Joint Committee on History and Education for Citizenship.
  28. Swisher, J. A.: "Historical information necessary for an intelligent understanding of democratic problems." *Seventeenth Yearbook of the National Society for the Study of Education*, Part I, pp. 81-88. Public School Publishing Company, Bloomington, Ill., 1918. An attempt, by analyzing books and articles dealing with crucial social problems, to discover what history is most necessary to an understanding of them.
- E. METHODS OF TEACHING
29. Barnes, Mary S.: "*Studies in Historical Method.*" D. C. Heath, Boston, 1899. Reports some early experimental studies in history and gives concrete suggestions for teaching it.
  30. Bourne, Henry E.: "*The Teaching of History and Civics in Elementary and Secondary Schools.*" Longmans, Green and Company, New York, 1907. A discussion of the meaning, values, and objectives of history and civics; contains many suggestions on the side of method.
  31. Coss, John J.: "The Columbia College course in contemporary civilization." *The Historical Outlook*, Vol. XIII, p. 204. A description of a new type of social science college course required of all freshmen in Columbia College. (See "A syllabus for the freshman course in introduction to contemporary civilization," Third Edition, *Columbia University Press*, New York, 1921.)
  32. Hatch, Roy W.: "*Projects in Citizenship.*" The Citizenship Company, 323 Beechwood Place, Leonia, N. J., 1923. This bulletin contains many concrete suggestions for teachers of the social sciences; outlines desirable projects and activities, and contains helpful references to other illustrative material.
  33. Hatch, Roy W.: "Teaching modern history by the project method." *Teachers College Record*, Vol. XXI, pp. 452-470. A description of a series of projects which by use of concrete examples illustrates a new method of teaching history.
  34. Hill, Howard C.: "Opportunities for correlation between community life and English." *The School Review*, Vol. XXX, pp. 24-36, 118-130, 175-186: An account, very suggestive to teachers of the social sciences, of how civic materials are utilized in English classes in the University of Chicago High School in order to enrich and vitalize both subjects of instruction.
  35. Hill, Mabel: "*Teaching of Civics.*" Houghton, Mifflin Company, Boston, 1914. Outlines a course in the elements of community life and offers suggestions for its teaching.
  36. Holtz, Frederick L.: "*Principles and Methods of Teaching Geography.*" The Macmillan Company, New York, 1921. Describes the principal present-day methods of teaching geography; gives illustrative lessons; and includes a chapter on the early teaching of geography.

37. Johnson, Henry: "*Teaching of History in Elementary and Secondary Schools.*" The Macmillan Company, New York, 1916. An analysis of what history is, what its aims and values are; contains many suggestions on methods of teaching the subject; and includes two excellent chapters on how history came to be taught, both in Europe and in the United States.
38. Rugg, Earle: "Character and value of standardized tests in history." *The School Review*, Vol. XXVII, pp. 757-771. An evaluation of the movement to standardize examination questions in the field of history.
39. Rugg, Earle: "Supervised study in history." *The Historical Outlook*, Vol. XI, pp. 142-149. A description of the efforts to improve the teaching of history through better methods of study and supervision.
40. Tryon, Rolla M.: "*The Teaching of History in Junior and Senior High Schools.*" Ginn & Company, Boston, 1921. A concrete, helpful book on the teaching and organization of secondary school courses in history; suggests various methods of teaching the subject.
41. United States Bureau of Education: "The teaching of community civics." *Bulletin* 23, 1915. Washington, D. C., 1915. This bulletin offers many concrete suggestions for teaching community life and has been influential in shaping our community civics courses to-day.

#### F. MISCELLANEOUS

42. National Council for the Social Studies: "Annual summary statement." *The Historical Outlook*, Vol. XIII, pp. 317-360. The December, 1922, issue of this periodical is devoted to a summary of the progress of the social studies and to a series of articles describing briefly the experiments being carried on in this field.

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For a more extended bibliography on the social sciences, see Thompson, Olive: "A guide to readings in civic education." *Bureau of Research in Education*, Study No. 11, University of California Press, Berkeley, Calif. Nov., 1922, 58 pp. Price 50c.

## APPENDIX II

### A STATISTICAL PRESENTATION OF FACTS CONCERNING THE CURRENT COURSES

TABLE I. STATISTICAL SUMMARY OF RETURNS ON THE QUESTIONNAIRE ON TRAINING  
FOR CITIZENSHIP<sup>1</sup>

Number schools reporting.....	1,180	3. Schools doing so by means of	
Number developing citizenship through		a) Selected readings..	599
A. Arousing sentiments by means of		b) Memorization work	75
I. Assembly talks .....	1,164	c) Dramatic appeal..	179
1. Frequency of meetings		d) Interpretative power of teachers	586
a) Daily .....	33	e) Class discussions and debates ..	213
b) Weekly .....	520		
c) 2 or 3 times weekly .....	155	X. Visits to places and institutions	
d) 1, 2, or 3 times monthly .....	230	1. Schools doing so.....	495
e) Occasionally and irregularly .....	197	2. Schools not doing so.	538
2. Speakers		a) Civic councils and offices .....	166
a) Superintendent and principal .....	408	b) State institutions..	73
b) Teachers. ....	363	c) Courts and penal institutions .....	185
c) Students .....	71	d) Charitable institutions .....	100
d) Local Citizens and notables .....	1,053	e) Social settlements..	77
II. Music of stirring type... ..	1,142	f) Religious and educational institutions .....	33
1. Frequency		g) Local voluntary organizations .....	54
a) Daily or at occasional assemblies	131	h) Factories, mines, farms, etc. ....	211
b) 1, 2, or 3 times weekly .....	654		
c) Occasionally .....	239	B. Giving citizenship information through	
III. Oral readings before classes		I. A course in civics	
1. Schools having.....	768	1. Schools having.....	1,148
2. Schools not having...	210	2. In course separated from history.....	989
IV. Prescribed class readings		3. In course with history	144
1. Schools having.....	869	4. In grades	
2. Schools not having..	175	a) Ninth .....	160
V. Dramatics		b) Tenth .....	76
1. Schools having.....	398	c) Eleventh .....	339
2. Schools not having...	614	d) Twelfth .....	886
VI. Pageantry		Total .....	1,461
1. Schools having.....	352	5. Length of courses	
2. Schools not having...	674	a) Less than half year	43
VII. Moving pictures		b) Half years .....	890
1. Schools having.....	290	c) One year .....	185
2. Schools not having...	710	6. Texts used in high school <sup>2</sup>	
VIII. Stereopticons		a) Ashley's <i>The New Civics and American Government</i>	153
1. Schools having.....	438	b) Hughes' <i>Community Civics</i> .....	116
2. Schools not having...	541		
IX. Literature taught inspirationally			
1. Schools claiming to do so .....	1,030		
2. Schools failing to do so .....	38		

<sup>1</sup>This table reprinted from the *School Review*, April, 1920, by permission of the author, Dr. C. O. Davis, and the editors of the magazine.

<sup>2</sup>In addition to the texts named here occasionally others are mentioned. The same holds true of the lists given in II and III below.



c) Magruder's <i>American Government</i> .....	144	III. A course in elementary economics	
d) Guitteau's <i>Government and Politics in the United States</i> .....	208	1. Schools having.....	696
e) Boynton's <i>School Civics</i> .....	33	2. Schools not having...	406
f) Woodburn and Moran's <i>Citizen and the Republic</i> ...	55	3. Separate from history	662
g) Garner's <i>Government in the United States</i> ...	73	4. Separate from civics..	609
h) Dunn's <i>The Community and the Citizen</i> .....	28	5. Separate from sociology.....	511
i) Forman's <i>Advanced Civics</i> .....	72	6. Texts used	
j) James and Sanford's <i>Government in State and Nation</i>	137	a) Thompson's <i>Elementary Economics</i> .....	64
7. Recitations five times weekly.....	1,072	b) Ely and Wicker's <i>Principles of Elementary Economics</i> .....	199
8. Civics below the high school		c) Bullock's <i>Elements of Economics</i> ....	127
a) Schools having ..	871	d) Burch and Nearing's <i>Elements of Economics</i> .....	70
b) Schools not having	112	e) Laughlin's <i>Elements of Political Economy</i> .....	43
9. Texts used below high school		7. Grades offered	
a) Dunn's <i>Community Civics</i> .....	85	a) Ninth.....	11
b) Turkington's <i>My Country</i> .....	74	b) Tenth.....	41
c) Forman's <i>Essentials in Civil Government</i> .....	32	c) Eleventh.....	322
d) Hughes' <i>Community Civics</i> .....	117	d) Twelfth.....	497
e) Guitteau's <i>Preparing for Citizenship</i> .....	63	8. Five recitations weekly.....	622
f) Nida's <i>City, State, and Nation</i> .....	21	IV. A course in current events	
g) Others.....	111	1. Schools having.....	1,008
II. A course in elementary sociology		2. Schools not having...	121
1. Schools having.....	298	3. As separate course...	176
2. Schools not having...	770	4. As course connected with	
3. Course separate from civics.....	230	a) History, civics, sociology, economics	911
4. Course separate from history.....	238	b) English.....	518
5. Texts used		5. Time allotment per week	
a) Tufts' <i>The Real Business of Living</i> .....	37	a) Under 40 minutes.	150
b) Towne's <i>Social Problems</i> .....	103	b) From 40 to 50 minutes.....	592
c) Ellwood's <i>Sociology and Modern Social Problems</i> ...	22	c) Over 50 minutes..	121
d) Burch and Patterson's <i>American Social Problems</i> ...	15	6. Sources of information	
6. Grades offered		a) <i>Current Events</i> ....	146
a) Ninth.....	17	b) <i>Literary Digest</i> ...	376
b) Tenth.....	22	c) <i>Outlook</i> .....	104
c) Eleventh.....	119	d) <i>Independent</i> .....	154
d) Twelfth.....	186	e) <i>Review of Reviews</i>	49
7. Five recitations weekly	218	f) <i>World's Work</i> ....	27
		g) Newspapers (unspecified).....	428
		h) Magazines (unspecified).....	531
		7. Prescribed for	
		a) Pupils in history and civics	278
		b) Pupils in English courses.....	136
		c) Designated groups of pupils.....	618
		V. A course in morals, manners, and life problems...	112
		VI. A course in occupations (or similar course).....	194
		VII. History taught by stressing	
		1. The worth of being free.....	1,057



2. American ideals . . . .	639		
3. Development of free institutions . . . . .	446		
4. Current social problems . . . . .	403		
5. Responsibilities of citizenship . . . . .	155		
<b>VIII. Biography studied</b>			
1. In some way unspecified . . . . .	1,012		
2. In history and English courses . . . . .	657		
3. In special programs or independently . . . . .	461		
<b>IX. Knowledge of the problems of capital and labor gained through</b>			
1. Assembly talks . . . .	161		
2. Debates and discussions . . . . .	330		
3. Regular class work . .	526		
4. Readings and current events reports . . . .	176		
<b>X. Training to use leisure time wholesomely by means of</b>			
1. School athletics . . .	159		
2. Lectures and talks . .	301		
3. Suggested readings . .	188		
4. Supervision of student affairs . . . . .	173		
5. Student clubs and societies . . . . .	194		
<b>XI. Reading the following books:</b>			
1. Hale's <i>The Man Without a Country</i> . . . .	125		
2. Theodore Roosevelt (Life and works) (Various authors) . . .	55		
3. Riis's <i>Making an American</i> . . . . .	106		
4. Gauss's <i>Democracy Today</i> . . . . .	98		
5. Austin's <i>The Promised Land</i> . . . .	73		
6. Washington's <i>Up from Slavery</i> . . . . .	38		
7. Riis's <i>How the Other Half Lives</i> . . . .	33		
8. Tufts' <i>The Real Business of Living</i> . . .	35		
9. <i>Biographies of Great Men</i> (Various authors) . . . . .	97		
10. <i>American Statesmen Series</i> (Various authors) . . . . .	65		
11. Watkins and Williams' <i>Forum of Democracy</i> . . . . .	38		
12. Franklin's <i>Autobiography</i> . . . . .	22		
13. Turkington's <i>My Country</i> . . . . .	31		
14. Beard's <i>American Ideals</i> . . . . .	23		
15. <i>World War Aims and Ideals</i> (Various authors) . . . . .	50		
<b>XII. Reading the following magazines:</b>			
1. <i>Literary Digest</i> . . . .	841		
2. <i>Independent</i> . . . . .	542		
3. <i>Outlook</i> . . . . .	472		
4. <i>World's Work</i> . . . .	314		
5. <i>Review of Reviews</i> . .	312		
6. <i>Current Events</i> . . . .	164		
7. <i>American</i> . . . . .	136		
8. <i>Popular Mechanics</i> . .	51		
9. <i>American Boy</i> . . . .	52		
10. <i>Atlantic Monthly</i> . .	57		
11. <i>Current Opinion</i> . . .	74		
12. <i>New Republic</i> . . . .	33		
13. <i>Pathfinder</i> . . . . .	62		
14. <i>National Geographic Magazine</i> . . . . .	60		
15. <i>Saturday Evening Post</i> . . . . .	43		
16. <i>Current History</i> . . .	39		
<b>C. Giving practice in citizenship through connection with</b>			
I. Junior Red Cross Societies			
1. Schools having . . . . .	880		
2. Schools not having . .	172		
II. Junior Good Citizenship League or similar organization			
1. Schools having . . . . .	76		
2. Schools not having . .	658		
<b>III. Boy Scout Organization</b>			
1. Schools having . . . . .	651		
2. Schools not having . .	305		
<b>IV. Girl Scout Organization or Campfire Girls</b>			
1. Schools having . . . . .	522		
2. Schools not having . .	387		
<b>V. Thrift Clubs</b>			
1. Schools having . . . . .	421		
2. Schools not having . .	458		
<b>VI. School paper</b>			
1. Schools having . . . . .	666		
2. Schools not having . .	360		
<b>VII. Military training</b>			
1. Schools having . . . . .	208		
2. Schools not having . .	720		
3. Schools prescribing it for boys . . . . .	83		
4. Schools making it optional . . . . .	107		
<b>VIII. Debating clubs</b>			
1. Schools having . . . . .	863		
2. Schools not having . .	194		
<b>IX. Mock elections</b>			
1. Schools having . . . . .	568		
2. Schools not having . .	379		
<b>X. Student self-government agencies</b>			
1. Schools having . . . . .	306		
2. Schools not having . .	550		
3. Schools publicly advertising the fact . . . . .	148		
4. Schools not publicly advertising the fact . .	393		
5. Schools having formal machinery for . . . . .	242		
6. Schools having teachers exert much control . . .	204		
7. Schools having teachers exert little control . . .	255		

<b>XI. Schools inculcating patriotism through</b>		<b>V. Authorities favoring a local branch of society of Universal Service for Social Improvement . . . . .</b>	<b>432</b>
1. Patriotic celebrations.	96	<b>VI. Authorities not favoring such branch . . . . .</b>	<b>207</b>
2. Talks and lectures...	189	<b>VII. Authorities believing training for citizenship can best be secured through</b>	
3. Self-government agencies . . . . .	223	1. Good teaching in all branches . . . . .	346
4. Student co-operative associations . . . . .	169	2. Courses in the social sciences and literature	188
5. Participation in school organizations . . . . .	381	3. Stressing ideals of conduct by teachers.....	381
6. Athletics . . . . .	123	4. Personal example of teachers . . . . .	277
7. Regular class work..	353	5. Placing responsibilities for pupils personally.	284
8. School discipline . . . .	127	6. Student organizations.	328
<b>XII. Community centers</b>		7. Providing out-of-school services for society...	149
1. Schools having.....	373	8. School discipline . . . .	150
2. Schools not having...	398		
<b>Expressions of personal views</b>			
I. Authorities favoring a school pledge . . . . .	428		
II. Authorities not favoring a school pledge . . . . .	415		
<b>III. Authorities favoring a Junior Civic League.....</b>	<b>672</b>		
<b>IV. Authorities not favoring a Junior Civic League.....</b>	<b>183</b>		

TABLE II.—NUMBER OF MINUTES PER WEEK DEVOTED TO HISTORY, IN PUBLIC CITY SCHOOL SYSTEMS

	School Grades									
	III	IV	V	VI	VII	VIII	IX	X	XI	XII
0- 14	46	36	13	8	3	3	32	6	8	9
15- 29	1	1	2	1						
30- 44	12	7	3	2	1	1				1
45- 59	12	6	1	1	1	1	1			
60- 74	5	6	7	5	2					
75- 89	1	5	8	7	2	4				
90-104	4	10	15	8	3	2				
105-119		1		1	1					1
120-134		5	15	18	15	11	1			1
135-149				1	3					
150-164		2	10	17	16	10	1	3	2	2
165-179				2	2	2	1	1	1	
180-194				1	9	8				
195-209			1	3	8	11	11	21	19	15
210-224						1		1	1	2
225-239					3	4	15	23	21	20
240-254				1	1	2	2	5	7	5
255-269										
270-284					1	1			1	1
285-299										
300-314	1				2	2	3	6	3	2
315-329							1	1	1	1
330-344										
345-359										
360-374										
375-389								1	1	
	82	79	75	76	73	63	68	68	65	60

TABLE III.—NUMBER OF MINUTES PER WEEK DEVOTED TO GEOGRAPHY, IN PUBLIC CITY SCHOOL SYSTEMS

	School Grades									
	III	IV	V	VI	VII	VIII	IX	X	XI	XII
0- 14	35	5			7	38	50	52	62	54
15- 29	1	1	2	1						
30- 44	9	3		1	1					
45- 59	5	1			1	1	1			
60- 74	11	2	4	4	3					
75- 89	10	10	5	7	2	7				
90-104	9	24	21	13	7	2	1			1
105-119		1	1	3	1					
120-134	1	16	21	15	16	8				1
135-149		2		1	3	1				
150-164	5	13	22	27	21	9				
165-179				1	4	1				
180-194		2		2	5	3				
195-209		3	7	8	10	4	9	4	1	1
210-224		1	1	1	2	1				
225-239			2	2	2		4	8	2	4
240-254		1	1	1	1	1	2	2	1	1
255-269										
270-284					1	1		1	1	1
285-299										
300-314					2					
	86	85	87	87	89	77	67	67	67	63

TABLE IV.—NUMBER OF MINUTES PER WEEK DEVOTED TO CIVICS, IN PUBLIC CITY SCHOOL SYSTEMS

	School Grades									
	III	IV	V	VI	VII	VIII	IX	X	XI	XII
0- 14	61	55	47	45	34	2	25	51	45	12
15- 29	4	4	2	3						
30- 44	6	10	12	7	1		1			1
45- 59	8	7	5	9	5	3				1
60- 74		1	5	8	9	6	1			
75- 89	1	1		1	6	3	1			
90-104			1	3	3	4	3			
105-119							2			
120-134					6	8	1	1		
135-149							1			
150-164					1	4	1	1		1
165-179						1				
180-194						4				
195-209					1	4	2	5	7	13
210-224						1	1			1
225-239					1	2			6	19
240-254						1		4	2	5
255-269								1		
270-284					1	1			1	1
285-299							1			
300-314						1				1
315-329								2	1	1
330-344										
345-359										
360-374										
375-389							1			1
	80	78	72	76	68	54	41	65	63	57

TABLE V.—NUMBER OF MINUTES PER WEEK DEVOTED TO HISTORY AND CIVICS, IN PUBLIC CITY SCHOOL SYSTEMS

	School Grades									
	III	IV	V	VI	VII	VIII	IX	X	XI	XII
0- 14										
15- 29	1		1							
30- 44		1	2							
45- 59	4	2	3	2		1				
60- 74	1									
75- 89		1			1					
90-104		3	5	2	6	4				
105-119										
120-134			1	4	1	3	1	1	1	
135-149										
150-164			2	1	3	2			1	1
165-179				1						
180-194					1	1				
195-209				1		5	2		1	
210-224					2	2				3
225-239					2					1
240-254					1	2				
255-269					2					1
270-284					1	1	1	1		
285-299										
300-314					1	5				1
315-329					2	1				
	6	7	14	12	23	27	4	2	3	7

TABLE VI.—SUMMARY OF REPLIES TO QUESTION BLANK RECEIVED FROM  
100 SCHOOL SYSTEMS

1.	Do you teach current events as a separate course?	Number of schools reporting		Yes 16	No 82							
		Number of schools not reporting		2								
2.	Number of minutes per week devoted to current events											
Grade.....	5	6	7	8	9	10	11	12				
No. giving no answers	70	66	58	62	73	75	72	67				
0- 14	2	2	2	2	3	3	2	1				
15- 29	11	7	6	4	3	1	0	1				
30- 44	14	19	23	21	10	9	10	14				
45- 59	3	6	7	6	11	9	13	14				
60- 74	0	0	3	2	0	1	2	2				
75- 89	0	0	0	1	0	1	0	0				
90-104	0	0	1	2	0	225-1	225-1	225-1				
	100	100	100	100	100	100	100	100				
3.	Do you use debates as a fairly regular feature of the class work in history or related subjects?	Number reporting		Yes 48	No 51							
		Number not reporting		1								
4.	Number of debates	1-5, 9; 6-10, 22; 11-15, 0; 16-20, 4 Total 35										
	Others not counted	- - - 5										
	Eight answering yes did not report the number.											
5.	Do pupils subscribe for magazines?	Number answering		Yes 71	No 28	Number not reporting 1						
6.	Magazines subscribed for by children	Current Events mentioned 42 times										
		Literary Digest 44										
		Current Topics Leaflet (loose leafs) 12										
		Independent 5										
		Others less than 5										
7.	If not. Does school buy enough library copies for a class to use at the same time?	Number reporting		Yes 9; No 18.	Number not reporting 2							
8.	What magazines	6 report Literary Digest										
		Others mentioned only once or twice										
9.	Required to give state examinations at end of eighth grade.	History		Geography		Civics						
		Number reporting	Yes 12	No 83	Yes 11	No 79	Yes 9	No 84				
		Number not reporting	5		10		7					
10.	Home study required	Number reporting							Yes 87; No 12.		Number not reporting 1	
11.	Number of minutes per week—Home study.											

Grades			Grades				
Minutes	3-6	7-9	10-12	Minutes	3-6	7-9	10-12
0- 29	28	1	0	180-209	0	7	10
30- 59	3	15	7	210-239	0	1	2
60- 89	4	5	6	240-269	1	1	3
90-119	8	8	5	270-299		0	0
120-149	1	8	7	300-329		3	5
150-179	2	15	6	330	1	1	2
					<u>48</u>	<u>65</u>	<u>53</u>



TABLE VII.—HISTORY AND CRITIQUE OF RELATIVE EFFECTIVENESS OF VARIOUS FORMS OF GOVERNMENT WITH WHICH SOCIETY HAS EXPERIMENTED TO SECURE ADEQUATE EXPRESSION OF  
(1) POPULAR OPINION (2) MOST INTELLIGENT OPINIONS.<sup>1</sup>

Comparative History of English and American forms of Party Government.	Critique of the Effectiveness of American Mechanism of Nominations and Elections	History of New Methods of Municipal and State Government. (a) Commission plan, (b) City Manager plan	History of Modern Political Thinking as Embodied in (1) Socialism (2) Anarchism (3) Syndicalism (4) Guild Socialism
Book A			
$\frac{3}{4}$ p. Beginning of (Amer.) political Parties. 1p. Growth of Party Spirit. $\frac{1}{2}$ p. Formation of new Political Parties. $\frac{3}{4}$ p. Electoral commission.	$\frac{1}{2}$ p. "Spoils System." 1p. Corruption in Political Life.	$\frac{1}{2}$ p. Commission Form of Gov't. $\frac{1}{4}$ City Mgr.	$\frac{1}{2}$ p. Socialism
Book B			
$\frac{3}{4}$ p. Rise of Political Parties. $1\frac{1}{2}$ p. "Representative" Gov't in the Colonies.	$\frac{1}{2}$ p. Wrongdoing on part of Public Officers. $\frac{1}{2}$ p. Criticism of Faithless Officials. $\frac{1}{2}$ p. Evil Election Practices. $\frac{1}{4}$ p. Evils in the Management of Political Parties. $\frac{3}{4}$ p. Evils of the "Spoils System."	$\frac{1}{2}$ p. Commission gov't. $\frac{1}{2}$ p. City Manager Plan.	2p. Socialism.
Book C			
1p. "Down with the King Caucus." 1p. New Political Parties. 1p. Democracy in Europe. Incidental references to parties.	$\frac{3}{4}$ p. "To the Victors belong the Spoils." $\frac{3}{4}$ p. Political Bosses.	$\frac{1}{4}$ p. Commission Plan. 2 lines— City Manager.	
Book D			
$\frac{3}{4}$ p. "Two Schools of Politics." $\frac{1}{2}$ p. The First Parties. 1p. Democratic and Whig Parties. 1p. The Whigs in Power (1840-42.) 1p. Party Politics (1864-1876.) 6 lines Electoral Commission.	$\frac{3}{4}$ p. Dark Side of gov't (Tweed Ring.) 1p. "Spoils System."	$1\frac{1}{4}$ p. Commission gov't for cities.	$\frac{1}{2}$ p. Socialism. 2 lines. "Anarchists."

<sup>1</sup>The statistical and analytical work on which Tables 3 to 7 are based, was done in 1920-21 by Cecile Colloton.

TABLE VIII.—NUMBER OF PAGES OF FOUR CURRENT TEXTS DEVOTED TO THE DEVELOPMENT OF BUSINESS

Business Combination vs. Competition.	Government Regulation of Business.
Book A	
2p. The Growth of Corporations, Combination of Capital ½p. Railway Combinations	½p. Anti-Trust Laws ¾p. Interstate Commerce Commis- sion Act, 1887
Book B	
1½p. The Work of the Business Men 1¾p. The Great Industrial Trusts ¾p. Railroad Combinations and Captains of Industry	¼p. Anti-Trust Laws ¼p. Dissolution of Trusts ¼p. Clayton Anti-Trust Law ¾p. Interstate Commerce Commis- sion Act, 1887
Book C	
1p. "Big Business"; Trusts	5 lines. Interstate Commerce Com- mission Act, 1887
Book D	
1¼p. Big Business Men ¼p. Monopolies and Trusts ½p. Corporations and Banks ¾p. Large Corporations (1865-85)	¾p. Interstate Commerce Commis- sion Act, 1887 ½p. Anti-Trust Laws ¼p. Trade Commission 1½p. Government Business

TABLE IX.—NUMBER OF PAGES OF FOUR CURRENT TEXTS DEVOTED TO LABOR PROBLEMS

History of Movement for Consideration of hours, wages, profits, and democratization of control.	Labor Unionism.	Employers' Organizations.	Collective and Individual Bargaining.
Book A			
	$\frac{1}{2}$ p. Labor Unions and Factory Laws.	1p. Employers' Associations and Welfare Work.	
Book B			
$2\frac{1}{2}$ p. Public and Gov't. involved. Demand of public for an adjustment of Labor disputes. $2\frac{1}{2}$ p. The Labor Movement.	$2\frac{1}{2}$ p. Protective Organizations of Employees.	$\frac{1}{2}$ p. Employers' Organizations.	
Book C		Book D	
$1\frac{1}{4}$ p. Organization of Laborers.	$\frac{1}{2}$ p. Employers' Organizations.	2p. Labor Organizations (1865-66.) 1p. Labor. $\frac{3}{4}$ p. Labor Unions (1830-50.)	

TABLE X.—NUMBER OF PAGES OF FOUR CURRENT TEXTS DEVOTED TO THE HISTORY OF THE PRESS

History of the Press.	How News is Disseminated.	How the Press forms Public Opinion.	Freedom of the Press.
Book A			
0p. Press as a whole. ¼p. Newspaper and printing presses before 1730. ½p. Incidental—showing that papers contribute to dissemination of truth (Tweed.)			
Book B			
1½p. Colonial Press. 1½p. Rise of the Partisan Press. ½p. Inventions and their Results.	¾p. Magazines, Pamphlets. ½p. Illustrated papers. 1¼p. the Growth of the Magazine as an Educational Work.	½p. Influence of Colonial Press on the Revolution. ¼p. Influence of Magazine Stories on Politics.	½p. Opposition of royal governors.
Book C			
½p. Newspaper in the Colonies. ¼p. The Effects of the Rotary or Cylindrical Press on the Newspapers; first New York papers.	6 lines. "Why the People Knew so Little of Each Other." Difficulty of Getting Newspapers.	1 line. "Usefulness as Teachers of the People."	
Book D			
1 line. Gutenberg's invention. 1 line. Hoe's printing press. ½p. Colonial Reading Matter.	¼ "For the Reading of the Community."		

Several incidental references to "Newspapers."

TABLE XI.—(1) NUMBER OF PAGES OF FOUR RECENT TEXTS DEVOTED TO THE DEVELOPMENT OF CREDIT FACILITIES. (2) NUMBER OF PAGES DEVOTED TO CRITICAL CONSIDERATION OF CREDIT FACILITIES.

(1)	Book A	(2)
1½p. First Bank of United States		
¼p. New System of National Banks —1863		
¼p. Federal Reserve Act of 1913		
Book B		
¼p. United States Bank—1791		
1½p. "Federal Reserve" Banks 2 lines—Farm Loan system		
Book C		
¼p. A Mint and a National Bank		
Book D		
¼p. Hamilton's Bank 1791		
1¼p. Second U. S. Bank 1816		
¼p. Federal Reserve System		

TABLE XII.—PERCENTAGE OF SPACE DEVOTED TO (1) POLITICAL, (2) MILITARY, AND (3) SOCIAL AND ECONOMIC MATERIAL IN EIGHT EARLY TEXTBOOKS IN AMERICAN HISTORY OF ELEMENTARY AND HIGH SCHOOL GRADE (BOOKS PUBLISHED BEFORE 1860.)<sup>1</sup>

Author	Title	Political	Military	Social and Economic
Goodrich, C. A...	History of the United States.....	36.7	37.7	25.6
Goodrich, S. G.... (Peter Parley)	A Pictorial History of United States.....	32.8	56.2	11.0
Olney, J.....	A History of the United States.....	46.6	43.8	9.6
Sullivan, William.	History of the United States of America....	47.7	43.4	8.9
Taylor, C. B.....	A Universal History of the United States of America.....	38.5	49.6	11.9
Webster, Noah...	History of the United States.....	41.5	25.5	34.0
Willard, Emma...	Abridged History of the United States.....	44.7	48.3	7.0
Willson, M.....	History of the United States.....	50.3	43.6	6.1
Average.....	.....	38.4	44.3	17.2

NOTE—Tables XII; XIII; XIV; XV; and XVI supplied by Earle Rugg from a forthcoming study.

TABLE XIII.—PERCENTAGE OF SPACE DEVOTED TO (1) POLITICAL, (2) MILITARY, AND (3) SOCIAL AND ECONOMIC MATERIAL IN EIGHT CURRENT COMMONLY USED TEXT-BOOKS IN AMERICAN HISTORY OF ELEMENTARY AND HIGH SCHOOL GRADES.

Elementary School Texts

Author	Title	Political	Military	Social and Economic
Beard, C. A. and Bagley, W. C....	The History of the American People.....	39.12	12.59	48.29
Bourne, H. E. and Burton, E. J....	A History of the United States.....	44.65	17.94	37.41
Guitteau, W. B...	Our United States—A History.....	37.52	25.47	37.01
Hart, A. B..... (Elementary school text)	School History of the United States.....	44.52	9.60	45.88

High School Texts

Fite, E. D.....	History of the United States.....	55.44	14.11	30.45
Hart, A. B..... (High school text)	New American History..	53.75	10.88	35.37
McLaughlin, A. C.	A History of the American Nation.....	61.55	14.25	24.20
Muzzey, D. S....	An American History...	62.66	11.94	25.40
Average ....	.....	49.90	14.59	35.50

Compare these eight current histories with the eight early histories for proportion of space given to political, military and social and economic material. Notice increase in emphasis on political, and social and economic. Notice decrease in emphasis on military history.



TABLE XIV.—NUMBER OF PAGES DEVOTED TO CERTAIN FUNDAMENTAL SOCIAL AND ECONOMIC TOPICS IN EIGHT CURRENT HISTORIES AND IN EIGHT EARLY HISTORIES.

	Current History texts 1921								Early History texts—Before 1860								Average pages 8 current books	Average pages 8 early texts
	Beard and Bagley	Bourne and Benton	Guilleau	Hart	Fite	Hart	McLaughlin	Muzzey	Goodrich, C. A.	Goodrich, S. G.	Olney, J.	Sullivan, W.	Taylor, C. B.	Webster, Noah	Willard, E.	Willson, M.		
Agriculture.....	5	7	7	3	8	6	5	4	2	$\frac{2}{3}$	$\frac{1}{2}$	0	1	$\frac{1}{8}$	$\frac{1}{2}$	$\frac{1}{3}$	5	$\frac{1}{2}$
Banking and Money ...	8	4	12	10	21	12	13	18	4	4	1	$\frac{2}{3}$	$\frac{1}{18}$	0	3	1	12	1
Canal and Roads.....	7	3	5	5	5	7	5	3	$\frac{2}{3}$	0	$\frac{1}{2}$	$\frac{1}{30}$	$\frac{1}{3}$	0	$\frac{1}{2}$	$\frac{1}{30}$	5	1
Commerce and Trade....	14	6	8	9	15	8	3	5	4	$\frac{2}{3}$	$\frac{3}{4}$	$\frac{1}{30}$	2	5	$\frac{1}{2}$	$\frac{1}{10}$	8	1
Education.....	22	10	11	7	2	6	2	$1\frac{1}{2}$	5	2	4	2	$\frac{1}{5}$	$1\frac{1}{2}$	$2\frac{1}{2}$	$\frac{2}{3}$	7	2
Fisheries.....	$\frac{1}{4}$	$\frac{1}{6}$	$\frac{2}{3}$	$\frac{1}{6}$	1	$\frac{2}{3}$	1	$\frac{1}{2}$	$\frac{1}{18}$	0	$\frac{1}{6}$	$\frac{1}{30}$	$\frac{1}{6}$	0	0	0	$\frac{1}{2}$	$\frac{1}{2}$
Inventions and Patents..	10	4	4	6	3	5	2	$\frac{1}{2}$	$\frac{2}{3}$	$\frac{1}{3}$	$\frac{3}{4}$	0	0	0	0	0	4	$\frac{1}{5}$
Labor.....	19	7	10	9	8	9	6	6	0	0	$\frac{1}{8}$	0	0	0	0	0	9	1
Manufacturers and Business.....	21	19	13	9	10	9	4	6	5	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{30}$	$\frac{1}{2}$	$1\frac{1}{8}$	$3\frac{1}{4}$	$\frac{1}{5}$	11	1
Mining.....	2	$\frac{3}{4}$	$\frac{1}{3}$	2	2	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	0	0	$\frac{1}{2}$	0	0	$\frac{1}{2}$	$3\frac{1}{4}$	1	1	$\frac{1}{8}$
Natural Resources.....	15	13	9	9	13	15	5	7	$\frac{1}{2}$	2	0	$\frac{1}{6}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$\frac{1}{2}$	0	10	2
Newspapers and Literature.....	9	$1\frac{1}{2}$	$\frac{1}{2}$	1	$\frac{3}{4}$	4	1	1	$\frac{3}{4}$	$\frac{1}{8}$	2	$\frac{1}{18}$	$\frac{1}{18}$	$\frac{1}{2}$	0	0	2	$\frac{1}{8}$
Population.....	18	17	21	17	21	13	6	6	5	$\frac{1}{8}$	$\frac{2}{3}$	2	5	3	5	$\frac{1}{10}$	14	2
Postal Service.....	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{18}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{30}$	$\frac{1}{4}$	0	0	$\frac{1}{30}$	0	$\frac{1}{3}$	0	$\frac{1}{2}$	0	$\frac{1}{8}$	$\frac{1}{10}$
Railroads.....	6	8	4	7	6	10	7	6	0	$\frac{1}{4}$	$\frac{1}{8}$	0	0	0	$\frac{1}{10}$	0	6	$\frac{1}{12}$
Religion and Church....	4	4	7	9	8	8	8	3	8	9	8	$1\frac{1}{2}$	4	7	3	4	6	5
River and Lake Traffic...	5	1	1	3	2	2	1	$\frac{1}{7}$	Omitted on early texts	Omitted on early texts	Omitted on early texts	Omitted on early texts	Omitted on early texts	Omitted on early texts	Omitted on early texts	Omitted on early texts	1	1
Slavery.....	21	11	32	6	30	26	28	41	$1\frac{1}{2}$	2	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	1	5	3	25	1
Tariff and Trade Restraint	7	2	8	6	18	6	10	10	$\frac{1}{6}$	$\frac{1}{4}$	1	$\frac{1}{10}$	6	$\frac{1}{6}$	2	2	8	1
Tax and Debt.....	5	7	4	2	6	2	5	5	6	11	3	$\frac{1}{10}$	14	7	3	8	4	6
Telephone and Telegraph	1	$\frac{1}{12}$	$\frac{1}{10}$	$\frac{1}{6}$	1	$\frac{1}{2}$	$\frac{1}{6}$	0	Omitted on early texts	Omitted on early texts	Omitted on early texts	Omitted on early texts	Omitted on early texts	Omitted on early texts	Omitted on early texts	Omitted on early texts	$\frac{1}{2}$	1
General Economics, Social conditions, Life of people.....	25	19	28	30	12	19	17	14	46	11	0	9	36	70	0	0	20	21

TABLE XV.—THE PERCENTAGE OF SPACE ALLOTTED TO EACH OF THESE PERIODS IN AMERICAN HISTORY BY THE STUDY OF W. C. BAGLEY AND H. O. RUGG OF 23 ELEMENTARY SCHOOL TEXTS PUBLISHED 1860-1912; EIGHT CURRENT HISTORIES (E. V. RUGG); THE COMMITTEE OF EIGHT REPORT, 1909; AND EIGHT EARLY TEXTS PUBLISHED BEFORE 1860.

Period	The Bagley-Rugg Study	Study of current histories	Committee of eight report	Early histories published before 1860
Discovery and Exploration 1000-1607.....	8.27	5.73	12.90	8.09
Colonization 1607-1690.....	15.95	8.89	21.20	28.73
Colonial Wars 1690-1763.....	3.67	6.48	3.10	6.48
Pre-Revolutionary War Period 1763-1775.....	4.11	3.50	2.06	4.32
Revolutionary War 1775-1783..	9.58	5.67	14.40	20.36
Period 1783-1812.....	14.17	10.82	8.70	9.60
Period 1812-1861.....	21.01	24.28	22.70	*22.76
Civil War 1861-1865.....	10.22	7.70	6.10	
Period 1865-1912.....	14.45	21.69	9.30	
Period 1912 to date.....		5.86		

\*The proportionate emphasis is not exactly comparable in the last column because these histories were published between 1821-1857.

TABLE XVI.—THE 25 DATES MENTIONED MOST FREQUENTLY IN 8 CURRENT HISTORIES

Rank	Dates	Table A Total number of times mentioned by all books	Table B The 20 most important dates, ranked by the judgments of leading historians		
			Rank	Dates	Rank as determined by frequency of mention in texts
1	1860	300	1	1776	( 11)
2	1850	268	2	1492	(126)
3	1861	243	3	1607	( 78)
4	1812	229	4	1789	( 22)
5	1865	219	5	1620	(141)
6	1862	204	6	1803	( 37)
7	1890	147	7	1861	( 3)
8	1863	144	8	1787	( 13)
9	1864	143	9	1863	( 8)
10	1775	137	10	1820	( 17)
11	1776	134	11	1812	( 4)
12	1840	134	12	1765	(116)
13	1787	132	13	1783	( 23)
14	1917	128	14	1865	( 5)
15	1910	124	15	1850	( 2)
16	1848	117	16	1854	( 42)
17	1820	116	17	1775	( 10)
18	1913	114	18	1781	( 41)
19	1900	113	19	1823	(140)
20	1846	113	20	1846	( 20)
21	1830	112			
22	1789	111			
23	1783	109			
24	1898	106			
25	1837	101			

Of the twenty-five dates of Table A mentioned over 100 times, Nos. 1, 6, 7, 9, 12, 14, 15, 16, 18, 19, 21, 24 and 25 are not on the list of dates ranked as important by the historians.

459 different dates mentioned in current histories. Random sample of 100 pages gives an average of 2.1 dates mentioned per page. About 250 different dates mentioned in each book. In early texts a random sample show 2.01 dates mentioned per page.

# Information Concerning the National Society for the Study of Education

1. **PURPOSE.** The purpose of the National Society is to promote the investigation and discussion of educational questions. To this end it holds an annual meeting and publishes a series of Yearbooks.

2. **ELIGIBILITY TO MEMBERSHIP.** Any person who is interested in receiving its publications may become a member upon application to the Secretary and subsequent approval by the Executive Committee. Membership may not be had by libraries or by institutions.

3. **PERIOD OF MEMBERSHIP.** Applicants for membership may not date their entrance back of the current calendar year, and all memberships terminate automatically on December 31st, unless the dues for the ensuing year are paid as indicated in Item 6.

4. **CLASSES OF MEMBERS.** Application may be made for either active or associate membership. Active members pay two dollars dues annually, receive two copies of each publication, are entitled to vote, to hold office and to participate in discussion. Associate members pay one dollar dues annually, receive one copy of each publication, may attend the meetings of the Society, but may not vote, hold office or participate in discussion. The names of active members only are printed in Part I of each Yearbook. There were in 1922 about 500 active and 900 associate members.

5. **ELECTION FEE.** New active and new associate members are required the first year to pay, in addition to the dues, an election fee of one dollar.

6. **PAYMENT OF DUES.** Statements of dues are rendered in October for the following calendar year. By vote of the Society at the 1919 meeting, "any member so notified whose dues remain unpaid on January 1st, thereby loses his membership and can be reinstated only by paying the election fee of one dollar required of new members." School warrants and vouchers from institutions must be accompanied by definite information concerning the name and address and class of membership of the person for whom membership fee is being paid.

7. **DISTRIBUTION OF YEARBOOKS TO MEMBERS.** The Yearbooks, ready each February, will be mailed from the office of the publishers and only to members whose dues for that year have been paid. Members who desire Yearbooks prior to the current year must purchase them directly from the publishers (see Item 8).

8. **COMMERCIAL SALES.** The distribution of all Yearbooks prior to the current year and also of those of the current year not regularly mailed to members in exchange for their dues is in the hands of the publishers, not of the secretary. For such commercial sales, communicate directly with the Public School Publishing Company, Bloomington, Illinois, who will gladly send a price list covering all the publications of this Society and of its predecessor, the National Herbart Society.

9. **YEARBOOKS.** The Yearbooks are issued in parts (usually two) every February. They comprise from 250 to 500 pages annually. Unusual effort has been made to make them on the one hand of immediate practical value and on the other hand representative of sound scholarship and scientific investigation. Many of them are the fruit of cooperative work by committees of the Society.

10. **MEETINGS.** The annual meeting, at which the Yearbooks are discussed, is held in February at the same time and place as the meeting of the Department of Superintendence of the National Education Association.

Applications for membership will be handled promptly at any time on receipt of name and address, together with check for the appropriate amount (\$3.00 for new active membership, \$2.00 for new associate membership).

GUY M. WHIPPLE, Secretary-Treasurer.

University of Michigan,  
Ann Arbor, Michigan.









BOUND VOLUMES  
OF  
THE YEARBOOKS OF THE SOCIETY  
I-XXIX

The yearbooks of the National Society for the Study of Education form the outstanding feature of its activities. In the earlier days of the Society these publications were comparatively small in size, though not in importance of their topics or in authoritative-ness of their producers. From the first, the policy was adopted of issuing the yearbooks in advance of the meeting at which they were to be discussed. As long as the membership of the Society was limited to a small group of active participants, the annual meetings were perhaps of even more importance than the printed material which formed the subject matter for discussion. But as the Society's membership increased and as the number of non-members attracted to its meetings also increased, the difficulty of holding these intimate discussions likewise increased, the meetings gradually shifted in character, so that the formal presentation of addresses came to assume more, and the discussions less importance—a change which many members deplored, but which it has seemed impossible to avoid. At the same time, the commercial sales of yearbooks not distributed to members in return for their dues correspondingly increased and gradually affected the functions of the Society in ways that could hardly have been foreseen at the outset. More particularly, the financial returns from the sales of its yearbooks have produced for the Society a source of income which has increased like the proverbial snowball, and which has brought it about that the Society is to-day in some respects more nearly a publishing society than a society for the holding of meetings and discussion of educational topics. In other words, the production and distribution of its yearbooks, rather than the holding of its annual meetings, has come to be the chief method by which the Society is now influencing the trend of educational thinking and practice. As will be seen by a glance at the statements given in the annual reports of the Secretary, the sums now available to the Society from the sale of its yearbooks have reached very considerable proportions. The policy of the officers of the Society has been consistently to return these profits to the members of the Society,

partly by issuing yearbooks that often cost most to deliver to its members than the dues received in return, partly by subsidizing more effectively the work of the various committees that are at work upon the production of forthcoming yearbooks.

All in all, then, the yearbooks of the National Society for the Study of Education are in many respects a feature unique among educational organizations. As to their intrinsic worth as educational documents, there need be no argument; their ready sale, the repeated requests for permission to quote from their pages, and the numerous enthusiastic unsolicited endorsements from our members are sufficient testimony.

## SUMMARY OF YEARBOOKS I-XXIX

The following is a list of the fifty-six books published to date (1930) together with the names of the contributors and a brief synopsis of the contents of each book. Perusal of this summary will show the scope and importance of the Society's publications.

### VOLUME ONE

#### THE FIRST YEARBOOK, PART I (1902)

##### SOME PRINCIPLES IN THE TEACHING OF HISTORY

Lucy M. Salmon

This first yearbook of the Society is a concise and stimulating discussion of the principles underlying the teaching of history. The author devotes various sections of the paper to a discussion of the place of the sources in the school course, the historian in relation to the selection of materials, the relation of history to other subjects, and changes in the methods of teaching it. The concluding section gives an outline of the history recommended for use in the twelve grades.

#### THE FIRST YEARBOOK, PART II (1902)

##### THE PROGRESS OF GEOGRAPHY IN THE SCHOOLS

W. M. Davis and H. M. Wilson

Some of the best principles which govern the teaching of geography to-day are set forth in this early yearbook of the Society. Mr. Davis, the author of the major portion of the volume, deplors the deficiency of higher learning in the field, urges better training of teachers in the subject matter, stresses the need of subordinating detailed items to general principles, points out the importance of showing causal relations in teaching the subject, and advocates better and more extensive use of equipment of geographical laboratories. Some space is devoted to a discussion of ontography, systematic and regional physi-

ography, and systematic and regional geography, with brief reference to their places in the curriculum. The concluding chapter, by Mr. Wilson, discusses the relation of geography to the sciences.

## THE SECOND YEARBOOK, PART I (1903)

### THE COURSE OF STUDY IN HISTORY IN THE COMMON SCHOOLS

Isabel Lawrence, Charles A. McMurry, Frank McMurry,  
Edward C. Page, and Emily J. Rice

The major portion of this yearbook is devoted to a course of study in history for grades three to eight inclusive, prepared by Charles A. McMurry. Particular recognition is given to the intimate relation between history and reading and geography. A brief course in geography is outlined for use with the subject matter in history and reading. The final chapters of the volume are a series of interesting papers discussing Miss Salmon's presentation of the principles of teaching history, which appeared as Part I of the First Yearbook.

## THE SECOND YEARBOOK, PART II (1903)

### THE RELATION OF THEORY TO PRACTICE IN EDUCATION

David Felmley, Manfred J. Holmes, John A. Keith, and Levi Seeley

Under the chairmanship of John A. Keith, a committee of the Society undertook a careful study of the relation of theory to practice in education in (a) universities, (b) normal schools, and (c) city training schools. The plans of the committee embraced a historical account of earlier procedure in each of these types of institutions, an account of contemporary procedure, an investigation of the most effective relation of theory to practice under various forms of institutional organization, and a study of the relative values and essentials of some nine fields of subject matter offered in those institutions. This yearbook is devoted largely to the Committee's report on the situation in the normal schools.

## THE THIRD YEARBOOK, PART I (1904)

### THE RELATION OF THEORY TO PRACTICE IN THE EDUCATION OF TEACHERS

Sarah C. Brooks, John Dewey, C. H. Farnsworth, F. M. McMurry,  
G. R. Richards, D. E. Smith, and T. D. Wood

This yearbook consists of three sections: (1) a paper by John Dewey, entitled "The Relation of Theory to Practice in Education," (2) further treatment of the same topic in a paper by Sarah C. Brooks, and (3) a description of the "Theory and Practice at Teachers College, Columbia University" by the remaining contributors. The secretary's report, referring to the meeting at which this yearbook was discussed, states: "The entire time was devoted to the discussion of Dr. John Dewey's paper. . . . This paper stirred up a good deal of vigorous thinking and provoked a great deal of highly valuable discussion." Dr. Dewey pointed out the artificiality of the conditions under which so-called practice is secured in those situations where young teachers gain



their experience by taking immediate control of a room under the observation of a superior supervisory officer. As a substitute for this method, he proposed that while the student was acquiring his knowledge of subject matter, theory, and principles, he should devote long periods to the observation of both skilled teachers and children at work in the classroom. This was to be followed by an assistantship to the teacher, which should lead gradually to experience in actual teaching.

### THE THIRD YEARBOOK, PART II (1904)

#### NATURE STUDY

Wilbur S. Jackman

The author of this yearbook has three objects in mind: to show (1) that nature study must be presented in accordance with the general principles of psychology which apply to all other subjects; (2) that it is necessary to start with broad, general views or pictures of nature and proceed gradually to the details; and (3) that nature study forms but a part of education, since its relationships reach into all other subjects which go to make up the whole. He suggests salient centers of subject matter and points out principles of method, carrying through the whole a due regard for the needs of the young and growing mind. The book is illustrated and contains a suggestive course of study.

### THE FOURTH YEARBOOK, PART I (1905)

#### THE EDUCATION AND TRAINING OF SECONDARY TEACHERS

S. D. Brooks, J. F. Brown, J. S. Brown, C. DeGarmo, E. G. Dexter, E. C. Elliott, C. B. Gilbert, G. S. Hall, R. P. Halleck, M. J. Holmes, E. J. James, L. H. Jones, L. C. Lord, A. F. Nightingale, M. V. O'Shea, H. H. Seerley, C. C. Van Liew, and J. N. Wilkinson

The two central problems of this yearbook are: (1) What constitutes the ideal secondary teacher?; and (2) By what selective process and preparation can the realization of this ideal be promoted? These problems are considered under five divisions: (1) an historical sketch, which seeks to trace briefly the genesis of secondary schools in their relation to the life of the people; (2) a presentation of the opinions of five experienced secondary-school men as to what constitutes the ideal secondary-school teacher; (3) an examination of the status and personnel of secondary teachers in the United States; (4) a survey of the provisions for the preparation of secondary-school teachers made by universities, normal schools, and colleges; and (5) a consensus of opinion as to the relative advantages and limitations of universities and normal schools in preparing secondary-school teachers.

### THE FOURTH YEARBOOK, PART II (1905)

#### THE PLACE OF VOCATIONAL SUBJECTS IN THE HIGH-SCHOOL CURRICULUM

J. Stanley Brown, Gilbert B. Morrison, and Ellen H. Richards

Three main groups of vocational studies have been treated in this yearbook: commercial work, manual training, and domestic science. These topics

are discussed in relation to their then present status, and their possibilities for future development. The concluding chapters of the book are devoted to a discussion of Part I of the Fourth Yearbook.

## VOLUME TWO

### THE FIFTH YEARBOOK, PART I (1906)

ON THE TEACHING OF ENGLISH IN ELEMENTARY AND HIGH SCHOOLS  
George P. Brown and Emerson Davis

This yearbook opens with a theoretical dissertation on what Mr. Brown considers the philosophical background for the efficient teaching of English. From this he proceeds to a more practical discussion of methods of teaching English in the primary and grammar grades and in the high school. The latter part of the book describes the course of study in English in the primary grades of the public schools of Cleveland.

### THE FIFTH YEARBOOK, PART II (1906)

THE CERTIFICATION OF TEACHERS  
Ellwood P. Cubberley

This yearbook sets forth in some detail the conditions prevailing in 1906 with reference to the certification of teachers, traces the development of certain tendencies relating to the problem, and offers suggestions as to lines along which improvement might be made.

### THE SIXTH YEARBOOK, PART I (1907)

VOCATIONAL STUDIES FOR COLLEGE ENTRANCE

W. J. S. Bryan, C. A. Herrick, H. W. Holmes, T. de Laguna, and  
V. Prettyman

Continuing the discussion begun in Part II of the Fourth Yearbook, this yearbook takes up those aspects of vocational subjects relating to college entrance.

### THE SIXTH YEARBOOK, PART II (1907)

THE KINDERGARTEN AND ITS RELATION TO ELEMENTARY EDUCATION

Ada Van Stone Harris, Patty S. Hill, E. A. Kirkpatrick, Maria Krause-Boelté,  
Harriette M. Mills, and Nina C. Vandewalker

This yearbook is devoted to an investigation of the relation between the kindergarten and elementary school. It was undertaken in order to further the effort to establish the kindergarten more firmly as a part of the public-school system by bridging the chasm which existed between it and the primary grades. It contains a résumé of Froebelian principles, a presentation of both the conservative and the progressive phases of kindergarten education, the history of kindergarten influence in elementary education, and a discussion of the evolution of the kindergarten program.

## THE SEVENTH YEARBOOK, PART I (1908)

### THE RELATION OF SUPERINTENDENTS AND PRINCIPALS TO THE TRAINING AND PROFESSIONAL IMPROVEMENT OF THEIR TEACHERS

Charles D. Lowry

This yearbook is largely a summary of replies to a questionnaire sent to members of the Society and others, asking (1) for opinions as to the need for carrying on systematic work for training the teaching force to a higher degree of efficiency, and (2) for statements of the nature of such work in those schools in which it was carried on. The replies pointed to the conclusion that the greatest essential for a teacher's life and growth is vigorous, systematic study, preferably in courses under the direction of higher institutions of learning. Various plans for attaining this result are presented in this volume.

## THE SEVENTH YEARBOOK, PART II (1908)

### THE COÖRDINATION OF THE KINDERGARTEN AND THE ELEMENTARY SCHOOL

Margaret Giddings, B. C. Gregory, Jennie B. Merrill, and Bertha Payne

"Supplement to Sixth Yearbook, Part II" is the secondary title of this yearbook. Following the somewhat theoretical discussion of the problem set forth in the earlier yearbook, this one attacks the more practical consideration of how to coördinate the work of the kindergarten and the school. It discusses ways and means of securing organic continuity between the two, shows how the right training of teachers may further the work of coördination, and sets forth the relation of supervision to the question at issue.

## THE EIGHTH YEARBOOK, PART I (1909)

### EDUCATION WITH REFERENCE TO SEX: PATHOLOGICAL, ECONOMIC, AND SOCIAL ASPECTS

Charles Richmond Henderson

## THE EIGHTH YEARBOOK, PART II (1909)

### EDUCATION WITH REFERENCE TO SEX: AGENCIES AND METHODS

Charles Richmond Henderson and Helen C. Putnam

The two parts of the Eighth Yearbook are meant to be considered as a single study. In Part I of the study evidence, drawn from the testimonies and experiences of well-known physicians and social hygienists, is offered to reveal the urgent need for instructing youth in sex hygiene. Part II gives practical suggestions to parents and teachers regarding formal instruction in matters of sex. The study concludes with a helpful paper by Dr. Putnam, entitled "Sex Instruction in the Schools," which is devoted chiefly to showing how this instruction may be presented in the school naturally and wholesomely in connection with biology.

## VOLUME THREE

### THE NINTH YEARBOOK, PART I (1910)

#### HEALTH AND EDUCATION

Thomas Denison Wood

A brief synopsis is given in this yearbook of the different phases of educational administration, supervision, and instruction which have to do with health. It treats of health examinations, school sanitation, the hygiene of instruction, health instruction, and physical education. A helpful bibliography concludes the volume.

### THE NINTH YEARBOOK, PART II (1910)

#### THE NURSE IN EDUCATION

M. Adeline Nutting, Mary L. Read, Isabel M. Stewart, and Thomas D. Wood

Supplementing the discussion in Part I, this volume is devoted to the rôle in education of the professionally trained nurse. It presents some of the important results attained in this field, outlines the scope and possibilities of the work, suggests the relationship of the nurse to the community, and indicates the coördination of the nurse's work with that of parent, regular teacher, school physician, teacher of physical education, and other special teachers whose particular subjects bring them into relation with the health side of education.

### THE TENTH YEARBOOK, PART I (1911)

#### THE CITY SCHOOL AS A COMMUNITY CENTER

C. W. Crampton, Mrs. E. C. Grice, Mrs. S. E. Hyre, H. C. Leipziger,  
C. A. Perry, E. W. Stitt, E. J. Ward, and R. D. Warden

The contributors to this volume have described in a concrete way the extent and character of experiments carried on under their direction for making the school a community center. They include in their discussion methods employed, results secured, concrete incidents, difficulties, criticisms, and suggestions encountered in their experiments, together with comparisons of similar work conducted in other communities.

### THE TENTH YEARBOOK, PART II (1911)

#### THE RURAL SCHOOL AS A COMMUNITY CENTER

E. C. Bishop, B. H. Crocheron, B. M. Davis, Jessie Field, A. B. Graham,  
F. W. Howe, O. J. Kern, and M. T. Scudder

This volume supplements Part I, and treats in a similar manner the problems and considerations involved in making the rural school a community center. It concludes with a bibliography on city and rural schools as social centers.

## THE ELEVENTH YEARBOOK, PART I (1912)

### INDUSTRIAL EDUCATION: TYPICAL EXPERIMENTS DESCRIBED AND INTERPRETED

J. F. Barker, M. Bloomfield, B. W. Johnson, P. Johnston, L. M. Leavitt,  
G. A. Mirick, M. W. Murray, C. F. Perry, A. L. Safford,  
and H. B. Wilson

In this yearbook an attempt is made to bring together accounts of actual progress made in organizing schools for industrial education, to interpret the various lines of experimentation undertaken, and to demonstrate practical possibilities. Each contributor was requested to describe the history, organization, and results of industrial education in his school, to compare his with other schools of the same type, and to show how his particular type of undertaking might contribute toward the whole problem of industrial education. (See the Twenty-Third Yearbook, Part II, for further treatment of this topic.)

## THE ELEVENTH YEARBOOK, PART II (1912)

### AGRICULTURAL EDUCATION IN SECONDARY SCHOOLS

H. F. Button, F. R. Crance, D. J. Crosby, W. H. French, W. R. Hart,  
A. C. Monahan, R. W. Stimson, and G. F. Warren

The aim of this yearbook was to present accounts of what was actually being done in secondary agricultural training in various parts of the United States at the time it was prepared. It represents an analysis of the typical experiments which were under way at that time, and gives some interpretation of each plan and its results.

## THE TWELFTH YEARBOOK, PART I (1913)

### THE SUPERVISION OF CITY SCHOOLS

Franklin Bobbitt, John W. Hall, and J. D. Wolcott

Professor Bobbitt, who contributes the major portion of this yearbook, treats the question of supervision under seven main heads, the most important of which are: the need for definite standards of achievement (with special reference to achievement tests); the necessity of determining under actual conditions the most efficient methods for actual service, and then insisting upon them; the importance of standard qualifications for teachers, with some account of a rating scale; the need for standard preliminary training of teachers; the need for training during service; and the importance of defining for teachers the extent, standards, and methods of work that are expected. The appendix, by Professor Hall, gives an account of the supervision of beginning teachers in Cincinnati. Mr. Wolcott contributes a bibliography on city-school supervision.

## THE TWELFTH YEARBOOK, PART II (1913)

### THE SUPERVISION OF RURAL SCHOOLS

A. S. Cook, J. Davis, L. J. Hanifan, U. J. Hoffman, W. Lund, A. C. Monahan,  
E. M. Rapp, J. E. Warren, and J. D. Wolcott

This is the third yearbook of the National Society to deal with an important phase of the administration of rural schools. The several authors



give accounts of what was actually being achieved in typical situations in various parts of the United States at the time the yearbook appeared.

## VOLUME FOUR

### THE THIRTEENTH YEARBOOK, PART I (1914)

#### SOME ASPECTS OF HIGH-SCHOOL INSTRUCTION AND ADMINISTRATION

E. R. Breslich, L. D. Coffman, W. A. Jessup, and H. C. Morrison

The three sections of this yearbook are devoted to a discussion of reconstructed mathematics, supervised study, and North Central High Schools, respectively. The first discusses very concretely needed re-adjustments in the subject of mathematics. The second presents the fundamental principles at the basis of the movement for supervised study, together with a review of the experiments that had been tried in various parts of the country. The last paper shows that a clear understanding of existing conditions with respect to the quality of the teaching staff is one of the most important steps in the direction of reconstruction of the subjects of the curriculum.

### THE THIRTEENTH YEARBOOK, PART II (1914)

#### PLANS FOR ORGANIZING SCHOOL SURVEYS, WITH A SUMMARY OF TYPICAL SCHOOL SURVEYS

Charles H. Judd and Henry L. Smith

The first paper in this volume treats the problem of school surveys from three angles: the conditions necessitating careful study of local school situations; the forces that can most safely and profitably be intrusted with making local surveys; and a possible method of approach to the problem in cities of from five to fifty thousand inhabitants. The second paper, by Professor Judd, includes accounts of all major surveys up to 1914, and gives a view of the different types of such inquiries.

### THE FOURTEENTH YEARBOOK, PART I (1915)

#### MINIMUM ESSENTIALS IN ELEMENTARY-SCHOOL SUBJECTS—STANDARDS AND CURRENT PRACTICES

W. C. Bagley, S. A. Courtis, F. N. Freeman, W. S. Gray, H. W. Holmes,  
J. F. Hosic, W. A. Jessup, R. G. Jones, H. C. Pryor,  
F. E. Thompson, and H. B. Wilson

This yearbook is the 1915 report of investigators coöperating with the Committee of the Department of Superintendence of the National Education Association on Economy of Time in Education, H. B. Wilson, chairman. Three other important yearbooks of the Society (XVI, Part I; XVII, Part I; and XVIII, Part II) are devoted to the subsequent reports of this important committee. This report has to do with means of developing a program for economizing time in the elementary school. A general survey is presented, showing how time is at present distributed in representative cities and describing typical experiments for gaining economy. The bulk of the report

deals with minimal standards in reading, handwriting, spelling, composition, grammar, arithmetic, geography, history, and literature, and represents a series of efforts by different contributors to determine for these subjects just what topics or aspects are truly essential.

## THE FOURTEENTH YEARBOOK, PART II (1915)

### METHODS FOR MEASURING TEACHERS' EFFICIENCY

Arthur C. Boyce

The author of this monograph calls attention first to the need for rating teachers and to the many inadequacies of the schemes for rating that are in common use. To meet this need and overcome these weaknesses, he proposes a method for rating which features a selected list of traits, a careful definition of these traits, and a graphic method for doing the rating. He also sets forth the results obtained by his method and discusses the relative importance of the several qualities of merit in teachers. Mr. Boyce's rating scale has attracted much attention and, in its original form or with variations, has been employed in the rating of large numbers of teachers.

## THE FIFTEENTH YEARBOOK, PART I (1916)

### STANDARDS AND TESTS FOR THE MEASUREMENT OF THE EFFICIENCY OF SCHOOLS AND SCHOOL SYSTEMS

B. T. Baldwin, F. W. Ballou, D. C. Bliss, B. R. Buckingham, H. G. Childs,  
S. A. Courtis, E. P. Cubberley, C. H. Judd, George Melcher, E. E.  
Oberholtzer, J. B. Sears, Daniel Starch, G. D. Strayer, M. R.  
Trabue, and G. M. Whipple

This volume is the report of the Committee of the National Council of Education of the National Education Association, under the chairmanship of G. D. Strayer, assisted by several invited collaborators. The fifteen chapters are grouped into two sections. Section I deals with the derivation of scales and units of measurement, including scales for physical growth and for arithmetic, score cards for city school buildings, and completion tests for school use. Section II deals with the application of scales and units of measurement in the work of educational supervision and administration. Among the systems from which accounts of the use of measuring scales are reported are Boston; Montclair; Bloomington, Indiana; Detroit; Salt Lake City; Kansas City, Missouri; Tulsa, Oklahoma; Oakland, California; Cleveland, Ohio; and Madison, Wisconsin.

## VOLUME FIVE

### THE FIFTEENTH YEARBOOK, PART II (1916)

#### THE RELATIONSHIP BETWEEN PERSISTENCE IN SCHOOL AND HOME CONDITIONS Charles E. Holley

The author of this monograph investigated on a fairly comprehensive scale the question: What factors determine the number of years of schooling

received by pupils in the public schools? Among the conclusions reached are these: (1) There is a high correlation between the general cultural advantages of a home and the schooling the children will receive. (2) Environmental influences more often cause a child to stop attending school than lack of ability. (3) Early elimination from school is largely due to factors over which the school has little or no control. (4) High schools are largely attended by the children of the "better class." (5) Marriages are distinctly affected by "educational selection." (6) A family tradition of schooling is effective in inducing unusual persistence in school in some cases.

## THE FIFTEENTH YEARBOOK, PART III (1916)

### THE JUNIOR HIGH SCHOOL

Aubrey A. Douglass

This monograph, which is accompanied by a bibliography of 173 titles, presents an excellent account of the junior high school as it existed in 1916. In the Appendix, particularly, will be found a general summary of the situation based on information from 100 American cities. The body of the volume discusses the general problems involved, the arguments for and against this type of school, its curriculum, its housing, and the characteristics of adolescence that it attempts to meet and utilize.

## THE SIXTEENTH YEARBOOK, PART I (1917)

### SECOND REPORT OF THE COMMITTEE ON MINIMAL ESSENTIALS IN ELEMENTARY-SCHOOL SUBJECTS

W. C. Bagley, W. W. Charters, F. N. Freeman, W. S. Gray, Ernest Horn,  
J. H. Hoskinson, W. S. Monroe, C. F. Munson, H. C. Pryor,  
L. W. Rapeer, G. M. Wilson, and H. B. Wilson

This yearbook is the 1917 report of investigators coöperating with the Committee on Economy of Time of the Department of Superintendence of the National Education Association, H. B. Wilson, chairman, and is the second printed report of that committee. It contains a further report on every subject discussed in the first report (Fourteenth Yearbook, Part I) and also a preliminary report on physical education. In this report the emphasis is upon the social value of the content of the several school subjects as a basis for the instruction given in them.

## THE SIXTEENTH YEARBOOK, PART II (1917)

### THE EFFICIENCY OF COLLEGE STUDENTS AS CONDITIONED BY AGE AT ENTRANCE AND SIZE OF HIGH SCHOOL

B. F. Pittenger

The author of this monograph sought by statistical methods to answer two questions: Is the quality of work done by college students affected by the age at which they enter or by the size of the high school from which they come? His results, based on a study of 828 students at the University of Minnesota, show, among other things, (1) that those entering before 18 years

of age did better work than those who entered at 18 or later, (2) that graduates of public schools did better work than graduates of military, private, or church schools, (3) that graduates of large schools did better work than graduates of small schools, (4) that the women did better work than the men, and (5) that elimination from the college, especially in the freshman year, is highly qualitative, in that the good students tend to remain and the poor ones to leave.

## THE SEVENTEENTH YEARBOOK, PART I (1918)

### THIRD REPORT OF THE COMMITTEE ON ECONOMY OF TIME IN EDUCATION

W. C. Bagley, B. B. Bassett, M. E. Branom, Alice Camerer, J. E. Dealey,  
C. A. Ellwood, E. B. Greene, A. B. Hart, J. F. Hosie, E. T. Housh,  
W. H. Mace, L. R. Marston, H. C. McKown, A. E. Mitchell,  
W. C. Reavis, D. Snedden, and H. B. Wilson

This is the 1918, or third (printed) report of the Committee of the Department of Superintendence of the National Education Association on Economy of Time in Education, and is prepared by various coöperating investigators. Like the first and second reports, printed as yearbooks of this Society, it deals primarily with studies concerning the minimal essentials of various elementary-school subjects, including arithmetic, geography, reading, composition, civics, and history. A special feature of this report is a symposium on the purposes of historical instruction in the seventh and eighth grades, arranged by W. C. Bagley, and contributed to by Professors Dealey, Ellwood, Greene, Hart, Mace, and Snedden. With the exception of this symposium, the various articles in this yearbook deal with actual investigations of the content of the curriculum, especially in its relation to the needs of daily life.

## VOLUME SIX

### THE SEVENTEENTH YEARBOOK, PART II (1918)

#### THE MEASUREMENT OF EDUCATIONAL PRODUCTS

E. J. Ashbaugh, W. A. Averill, L. P. Ayres, F. W. Ballou, Edna Bryner,  
B. R. Buckingham, S. A. Courtis, M. E. Haggerty, C. H. Judd,  
George Melcher, W. S. Monroe, E. A. Nifenecker,  
and E. L. Thorndike

The writers of this yearbook prepared it as representatives of the National Association of Directors of Educational Research (now the Educational Research Association) with the intent "to gather into one handy volume a rather complete statement of the various aspects of a new movement which seems destined to have a profound and permanent influence upon American Education." From the ready reception accorded the yearbook, it is not too much to say that this "rather complete statement" had, itself, a quite considerable influence in furthering the movement for educational measurement. Among the topics considered were: the history of educational measurement, the nature and purposes of such measurement, the organization of bureaus of research, a list of existing tests and scales, an exposition of statistical terms and methods, and suggestions for future development.



## THE EIGHTEENTH YEARBOOK, PART I (1919)

### THE PROFESSIONAL PREPARATION OF HIGH-SCHOOL TEACHERS

G. N. Cade, S. S. Colvin, Charles Fordyce, H. H. Foster, T. W. Gosling, W. S. Gray, L. V. Koos, A. R. Mead, H. L. Miller, F. C. Whitcomb,  
and Clifford Woody

The first 160 pages of this "double number" are devoted to a description by H. L. Miller of the University of Wisconsin plan for the preparation of high-school teachers. Section II contains three chapters by Gosling, Colvin, Koos, and Woody on miscellaneous aspects of the problem of teacher-training. Section III, which the remaining contributors prepared, is a report of the Committee of the Society of College Teachers of Education on Practice Teaching for Secondary Teachers. The volume as a whole thus contains not only important analyses of prevailing conditions in the training of high-school teachers, but also suggestive accounts of several novel experiments looking toward the bettering of the deficiencies found to exist in the preparation of such teachers.

## THE EIGHTEENTH YEARBOOK, PART II (1919)

### REPORT ON ECONOMY OF TIME IN LEARNING: FOURTH REPORT OF COMMITTEE ON ECONOMY OF TIME IN EDUCATION

F. C. Ayer, F. N. Freeman, W. S. Gray, Ernest Horn, W. S. Monroe,  
C. E. Seashore, and H. B. Wilson

This group of investigators operated as a sub-committee of the committee that was responsible for three preceding yearbooks bearing similar titles. The group took as its task the formulation of rules, or recipes, by which economy could be secured in education, not by better selection of topics for instruction (stressed in the preceding reports), but by improved methods of teaching which had been selected. The yearbook, accordingly, takes the form of a series of statements of fundamental principles which investigation, or the best expert opinion, has shown should be followed in teaching writing, reading, spelling, arithmetic, drawing, and music. This 'meaty' report has been much quoted and decidedly influential.

## VOLUME SEVEN

### NINETEENTH YEARBOOK, PART I (1920)

#### NEW MATERIALS OF INSTRUCTION

A Committee of the Society was created in 1918 under the title "Committee on Materials of Education," which had for its members Messrs. W. C. Bagley, J. C. Brown, C. E. Chadsey, L. D. Coffman, E. P. Cubberley, E. C. Elliott, H. C. Morrison, G. D. Strayer, G. M. Whipple, and C. H. Judd, chairman. With the coöperation of numerous persons this Committee assembled as their first report detailed examples of new materials of instruction, particularly in the fields of reading, geography, history, nature study, mathematics, and community life. The Committee stressed the importance of inducing school boards to set aside each year a certain amount of instructional energy for the purpose



of making similar new materials of instruction. (For further discussion of this topic, see the Twentieth Yearbook, Part I.)

## NINETEENTH YEARBOOK, PART II (1920)

### CLASSROOM PROBLEMS IN THE EDUCATION OF GIFTED CHILDREN

Theodore S. Henry

Dr. Henry summarized various types of flexible promotion schemes, described typical special rooms for gifted pupils, and then recounted at length the methods and results of an experimental room for gifted pupils organized at Urbana, Illinois. The closing chapters, in addition to a six-page bibliography, discuss the problem of adapting classroom methods to the training of gifted children, and present a series of eighteen specific recommendations for carrying on this type of educational endeavor. (For further discussion of this topic, see the Twenty-Third Yearbook, Part I.)

## THE TWENTIETH YEARBOOK, PART I (1921)

### SECOND REPORT OF THE SOCIETY'S COMMITTEE ON NEW MATERIALS OF INSTRUCTION

Frances Berry, Edna Keith, F. J. Kelly, W. N. Kerr, H. G. Lull, Nellie R. Olson, Nina Vandewalker, F. L. Whitney, and Numerous Collaborators

The Society's Committee (the same as that for the Nineteenth Yearbook, Part I), under the chairmanship of F. J. Kelly, appointed as sub-committee chairmen the persons listed above, who gathered and organized 295 detailed examples of new materials of instruction, and classified them for use in the kindergarten, the various elementary grades, the junior and the senior high school, and in special classes for the subnormal. These exercises, or 'projects,' all possess a degree of novelty and by the strong appeal they make to children are decidedly suggestive to teachers who are searching for material outside that of the regular textbooks or ordinary supplementary reading. This yearbook, like its predecessor on the same topic, may be regarded as a portion of the contribution made by this Society toward the reorganization of the curriculum.

## THE TWENTIETH YEARBOOK, PART II (1921)

### REPORT OF THE SOCIETY'S COMMITTEE ON SILENT READING

May A. Burgess, S. A. Courtis, C. E. Germane, W. S. Gray, H. A. Greene, Regina R. Heller, J. H. Hoover, James A. O'Brien, J. L. Packer, Daniel Starch, W. W. Theisen, G. A. Yoakum, and Representatives of the School Systems of Cedar Rapids, Denver, Iowa City, and Racine

The Executive Committee of the Society appointed a Committee on Silent Reading, under the chairmanship of Earnest Horn, which gathered the material in this volume as its report. Section I comprises ten chapters concerned with investigations of various aspects of the problem of reading, as for instance, the difficulties encountered in teaching silent reading, the measurement of speed and comprehension of silent reading, the vocabularies and contents of readers, and the development of reading speed. Section II contains examples

of concrete exercises which have actually been tried in the classroom for teaching silent reading. This yearbook may be regarded as intermediate in scope and purpose between the several treatments of reading in the earlier yearbooks on minimal essentials and the economy of time and the elaborate treatment of reading in the Twenty-Fourth Yearbook, Part I.

## VOLUME EIGHT

### TWENTY-FIRST YEARBOOK, PARTS I AND II (1922)

#### INTELLIGENCE TESTS AND THEIR USE

S. S. Colvin, Helen Davis, Bessie L. Gambrill, Henry W. Holmes, W. K. Layton, W. S. Miller, Rudolph Pintner, Agnes L. Rogers, H. O. Rugg, M. R. Trabue, E. L. Thorndike, and G. M. Whipple

Under the chairmanship of the late S. S. Colvin, this Committee of the Society produced this yearbook of 270 pages in the attempt to explain "in a clear and accurate manner the theory, nature, and practical use of intelligence tests." Its two parts are bound in one cover. Part I treats of 'general intelligence,' its nature, how it may be measured, how mental tests have developed, and their essential characteristics. Part II treats in considerable detail "the administrative uses of intelligence tests in various grades, beginning with the primary grade and ending with the college and university." In addition to a wide circulation among schoolmen, this yearbook has been extensively used for purposes of instruction in normal schools and colleges.

### TWENTY-SECOND YEARBOOK, PART I (1923)

#### ENGLISH COMPOSITION: ITS AIMS, METHODS, AND MEASUREMENT

Earl Hudelson

By means of questionnaires the author sought to discover from teachers of English what their actual aims and methods were with respect to composition. He next considered the means employed for determining the extent to which these aims were being attained and was led to devise and to standardize two scales for the measurement of English composition. His principal contention is that most composition scales test only how well the pupil can write upon that particular topic, not how well he can possibly write. For the latter purpose he proposes his Maximal Composition Ability Scale. To determine accurately from time to time the extent to which the pupils are exercising their real ability, he proposes another device known as the Typical Composition Ability Scale. Detailed instructions are given for the use of these two scales.

### TWENTY-SECOND YEARBOOK, PART II (1923)

#### THE SOCIAL STUDIES IN THE ELEMENTARY AND SECONDARY SCHOOL

A. S. Barr, J. J. Coss, Henry Harap, R. W. Hatch, H. C. Hill, Ernest Horn, C. H. Judd, L. C. Marshall, F. M. McMurry, Earle Rugg, H. O. Rugg, Emma Schweppe, Mabel Snedaker, and C. W. Washburne

This group of writers, under the direction of H. O. Rugg, has presented in this 324-page yearbook important and somewhat radical proposals concerning

the portion of the curriculum devoted to the social studies. Section I analyzes current practices, shows how social science curricula came to be what they are, and points out needed changes. Section II presents samples of reorganized courses in this field in several schools. Section III discusses the method by which such reorganizations of the curriculum should be carried on. Section IV is a critical appraisal of F. M. McMurtry of the proposed reorganizations. This volume may be regarded as one of several fore-runners of the proposed year-books on the Technique of Curriculum-Making. It applies, obviously, primarily to the geographical and historical portions of the curriculum.

## VOLUME NINE

### TWENTY-THIRD YEARBOOK, PART I (1924)

#### THE EDUCATION OF GIFTED CHILDREN

B. T. Baldwin, Helen Davis, Lillie R. Ernst, F. N. Freeman, T. S. Henry,  
Ernest Horn, H. O. Rugg, L. O. Smith, L. M. Terman, C. W. Waddle,  
and G. M. Whipple, chairman (the Society's Committee)

assisted by

J. R. Benson, E. R. Breslich, Arthur Brogue, Margaret V. Cobb, R. R. Cook,  
J. C. DeVoss, Anna M. Engel, E. M. Haney, H. C. Hill, K. J. Hoke,  
Leta A. Hollingworth, A. J. Martin, E. L. Moyer, Mary L.  
Patrick, W. C. Reavis, Grace A. Taylor, H. G. Townsend,  
C. W. Washburne, and W. L. Uhl

This extensive yearbook (443 pages of text) may be regarded as an attempt to gain further light and a more varied and comprehensive survey of the problem discussed in the Nineteenth Yearbook, Part II. Section I contains various reports and summaries of the more general aspects of the problem—the history of the movement for special training of the gifted, methods of locating such children, problems of organization and administration, the adaptation of the curriculum, non-intellectual traits of gifted children, etc. Section II presents numerous special studies of such children, with respect to their physical and mental traits, their educational achievements, their subsequent careers in the high school and university, and the outcomes of various school experiments in providing special training for them. Section III is a valuable annotated bibliography of 453 titles.

### TWENTY-THIRD YEARBOOK, PART II (1924)

#### VOCATIONAL GUIDANCE AND VOCATIONAL EDUCATION FOR THE INDUSTRIES

A. H. Edgerton and Fifty Collaborators

This yearbook is one of the largest ever undertaken by the Society. The material for it was gathered and organized by Professor Edgerton from many sources and with the aid of half a hundred contributors. It affords, therefore, a comprehensive exposition of the present status of the branch of educational endeavor to which it is devoted. Section I, which deals with vocational guid-

ance, gives detailed accounts of what is already being done in various city schools systems, both large and small, and in colleges and universities, also accounts of methods of training vocational counselors. Section II deals with vocational education for the industries. It shows what is being done in typical part-time, or continuation, schools and in typical day and evening industrial courses in smaller cities. Further, there is discussion of the training of workers in industry, the training of foremen, and the training of teachers for vocational industrial schools. Both sections are supplied with bibliographies.

## VOLUME TEN

### TWENTY-FOURTH YEARBOOK, PART I (1925)

#### REPORT OF THE NATIONAL COMMITTEE ON READING

F. W. Ballou, W. S. Gray, Rose L. Hardy, Ernest Horn, Frances Jenkins,  
S. A. Leonard, Estaline Wilson, and Laura Zirbes

Under the chairmanship of W. S. Gray, this Committee, appointed by Commissioner Tigert in January, 1923, subsidized by the Commonwealth Fund, and assisted by numerous school and university specialists, has used the avenue of publication afforded by this Society to present what is one of the most authoritative and most useful general discussions of the problem of reading that has been made available. Among the topics considered are: the aims of instruction in reading, a modern program of reading instruction for the elementary grades and the high school, methods of developing a meaningful vocabulary, the relation of reading to literature and the other content subjects, materials for instruction, standardized and informal reading tests, recognition of individual differences by diagnosis and remedial work. A feature of the book is the series of specific recommendations in which the members of the Committee, by discussion and experiment, have been able to concur.

### TWENTY-FOURTH YEARBOOK, PART II (1925)

#### ADAPTING THE SCHOOLS TO INDIVIDUAL DIFFERENCES

Franklin Bobbitt, B. R. Buckingham, S. A. Courtis, W. S. Gray, Ernest Horn,  
Jessie Mackinder, Helen Parkhurst, A. H. Sutherland, Mary A. Ward,  
C. W. Washburne, chairman (the Society's Committee)

assisted by

Cecilia Anderson, R. N. Brown, Grace E. Carter, F. E. Clerk, Mary H. Comings,  
U. J. Hoffman, Hilda M. Holmes, W. H. Holmes, W. H. Kilpatrick,  
S. A. Leonard, J. L. McCrory, H. L. Miller, W. C. Reavis,  
Margaret Smith, A. J. Stoddard, Elizabeth T. Sullivan,  
L. Belle Voegelien, and W. A. Wirt

Section I of this important yearbook describes the factors which under ordinary school conditions tend to produce maladjustments of pupils with respect to grading and rate of progress. Section II follows with a description of typical attempts to meet these difficulties by adjusting the school's organiza-



tion and methods of instruction. Section III details statistical results of experiments in the individualization of instruction, with special reference to the work at Winnetka. Section IV discusses the various problems which are encountered in thus adapting schools, and Section V outlines the steps involved in launching a program of this sort. Section VI is a critique of these proposals, while Section VII comprises an annotated bibliography of 76 pages.

## VOLUME ELEVEN

### TWENTY-FIFTH YEARBOOK, PART I (1926)

#### THE PRESENT STATUS OF SAFETY EDUCATION

M. B. Hillegas, A. B. Meredith, Z. E. Scott, A. W. Whitney, S. J. Williams,  
and G. M. Whipple, chairman (of the Society's Committee)

assisted by

Rena Allen, Mary N. Arrowsmith, Harriet E. Beard, Mary B. Day, Ruth C.  
Earle, H. S. Gruver, J. H. Harvey, Max Henig, Evelyn T. Holston,  
W. D. Keefer, Frances H. Miner, E. G. Payne, M. S. Pittman,  
Mary O. Pottenger, Idabelle Stevenson, and Ruth Streitz

This yearbook represents the product of coöperation between this Society and the Education Division of the National Safety Council. It traces the development of the safety movement in industry, in the schools, and in civic administration, shows how safety education has been introduced into various school systems, presents at great length and in full detail the materials and methods of a program of safety education for the elementary schools, with additional suggestions for the adaptation and extension of this program for use in high schools, and in rural and vocational schools. The volume concludes with a general discussion of the significance of safety education and the outlook for its future development.

### TWENTY-FIFTH YEARBOOK, PART II (1926)

#### EXTRA-CURRICULAR ACTIVITIES

F. C. Ayer, C. R. Foster, E. K. Fretwell, L. V. Koos, J. G. Masters,  
M. C. Prunty, W. C. Reavis, Earle Rugg, and P. W.  
Terry (the Society's Committee)

assisted by

E. H. Chappelle, F. Fickinger, C. E. Hagie, M. B. Horner, H. C. McKown,  
C. J. Pieper, E. S. Simmonds, and Clifford Woody

Under the chairmanship of L. V. Koos, this Committee and its associates, by extensive canvassing of the country, has brought together a comprehensive statement of the present status of extra-curricular activities in the public schools of the United States. The Committee has not sought primarily to evaluate these varied activities or to prescribe rules for their inauguration or



control, but rather to state current practices with respect to such matters as honor societies, publications, student government organizations, debating, music, athletics, assemblies, and clubs of all kinds. These are discussed for elementary, for junior-high, and for senior-high schools. Special attention is paid to the relation of the teacher to these various enterprises.

## VOLUME TWELVE

TWENTY-SIXTH YEARBOOK, PARTS I AND II (1927)

THE FOUNDATIONS AND TECHNIQUE OF CURRICULUM CONSTRUCTION

William C. Bagley, Franklin Bobbitt, Frederick G. Bonser, Werrett W. Charters,  
George S. Counts, Stuart A. Courtis, Ernest Horn, Charles H. Judd,  
Frederick J. Kelly, William H. Kilpatrick, Harold Rugg (Chairman);  
George A. Works (Members of the Society's Committee)

Associated Contributors

Otis W. Caldwell, Walter D. Cocking, Ellsworth Collings, Flora J. Cooke, J. L.  
Flanders, Harry O. Gillet, John A. Hockett, Marietta Johnson, Margaret  
Naumburg, Jesse H. Newlon, Raymond W. Osborne, Henry Carr  
Pearson, C. A. Phillips, Caroline Pratt, William C. Reavis, Ethel I.  
Salisbury, E. M. Sipple, Eugene R. Smith, A. L. Threlkeld,  
Carleton Washburne

From time to time, in a dynamic society it is imperative that we stand aside from the movement of affairs to review trends, to assay products, to map out new paths. The chief purpose of this Yearbook is a study and appraisal so far as agreement is possible of curriculum making in American schools—past and present.

For two years the Society's Committee was engaged in the development of one phase or another of the work, either in collecting and appraising the contemporary situation, in studying the chief trends of development in the past century or in prolonged round table conferences over similarities and divergences in educational theory.

This Yearbook presents three results of their efforts: a historical review, a description and evaluation of contemporary practices, and a statement of foundational principles for curriculum reconstruction.

Part I of this Yearbook attempts a description and critical synthesis of curriculum-making, past and present. Part II presents the committee's joint platform for curriculum-construction—a general statement of the foundational principles upon which the committee desires to see the next steps taken in the reconstruction of the school curriculum. Also the frank and interesting individual statements of the views of the several members of the committee.

## VOLUME THIRTEEN

### TWENTY-SEVENTH YEARBOOK, PART I (1928)

#### NATURE AND NURTURE: THEIR INFLUENCE UPON INTELLIGENCE

Lewis M. Terman, Barbara S. Burks, Truman L. Kelley, E. L. Thorndike,  
Raymond R. Willoughby, Harold E. Jones, Helen L. Koch, Gladys G.  
Tallman, Mildred Burlingame, Calvin P. Stone, Frank N. Freeman,  
K. J. Holzinger, Blythe C. Mitchell, Agnes L. Rogers, Dorothy  
Durling, Katharine McBride, Joseph Peterson, Katherine  
Murdoch, Doris Maddow, Nettie L. Berg, Gertrude  
Hildreth, Florence L. Goodenough, Carolyn Hoefer,  
Mattie C. Hardy, Lois Doe-Kulmann, Arnold  
Gesell, Janet A. Matthew, Bertha M. Luckey,  
Katharine B. Greene, Mary L. Casey,  
Helen P. Davidson, Doris I. Harter,  
and Arthur I. Gates

Part I contains a very useful and important chapter furnished by Mrs. Herman Ramsperger of Stanford University on difficulties met in the statistical handling of the material of nature-nurture studies. Her section on the discovery and expression of degrees of causation among groups of dependent factors is particularly important, including as it does discussion of path coefficients and coefficients of determination. Other chapters contain a study of the intelligence of siblings by E. L. Thorndike of Teachers College, Columbia University, a comparison of white and negro children in rational learning by Joseph Peterson of George Peabody College for Teachers, a study of the effect of the nursery school upon intelligence by Florence L. Goodenough of the University of Minnesota, and a checking of the effects of training by A. I. Gates of Teachers College, Columbia University. These are grouped under seven heads: (1) Family resemblance; (2) intelligence and social environment; (3) race differences; (4) intelligence and schooling; (5) relation to health or physique; (6) constancy of the IQ; and (7) effects of coaching or special training.

### TWENTY-SEVENTH YEARBOOK, PART II (1928)

#### NATURE AND NURTURE: THEIR INFLUENCE UPON ACHIEVEMENT

Lewis M. Terman, Leta S. Hollingworth, Margaret V. Cobb, J. D. Heilman,  
Katherine M. Denworth, F. P. Obrien, Howard Taylor, M. J. Van  
Wagenen, William A. McCall, T. C. Holy, Lonzo Jones, G. M.  
Ruch, L. Dewey Anderson, June E. Downey, Mark A. May,  
Hugh Hartshorne, Guy M. Whipple, Joseph Peterson,  
M. C. Barlow, P. R. Farnsworth, and Barbara S. Burks

The investigations of Part II of the Yearbook are grouped under five heads: (1) Achievement and intelligence; (2) achievement and school attendance; (3) achievement and teaching ability or school methods; (4) achievement and school expenditures; and (5) achievement and effort.

The basic question asked in Part II is as to whether (1) native ability or (2) public school experience determines levels of pupil achievement in school tasks. The most careful answer is offered in Chapter II, where J. D. Heilman of Colorado State Teachers College reports the use among a group of 828 ten-year old public school children in Denver of expressions of amount for (1) mental age, (2) school attitude, and (3) home status to determine school achievement in terms of educational age. He uses Sewell Wright's path coefficient method and finds that at least "50 percent of the variation in educational age" is due to heredity as measured in the study. School attendance alone accounts for but about 5 percent of the differences in school achievement found in his group of ten-year old pupils, and if the influence of school attendance in combination with mentality be added, not over 13 percent to 19 percent of educational age can be attributed to educational exposure. The implications of these findings for probable necessary length of elementary education are very apparent. The chairman of the Yearbook Committee, L. M. Terman, says, "Results such as those of Heilman open the question as to whether eight years of school attendance is really necessary to bring pupils up to the standard usually achieved by the eighth grade. One wonders whether in the four or five years between ten and fourteen they might not learn to read, write, and spell as well, and master as much arithmetic, history, and geography as they would be likely to in eight years."

## VOLUME FOURTEEN

### TWENTY-EIGHTH YEARBOOK, PARTS I AND II

#### PRESCHOOL AND PARENTAL EDUCATION

Prepared by the Society's Committee

B. T. Baldwin (deceased), Arnold Gesell, Patty S. Hill, Douglas Thom, Edna White, Helen T. Woolley, and Lois H. Meek (Chairman)

Assisted by

W. E. Blatz, Agnes Burke, Grace Caldwell, Lelah M. Crabbs, Bess V. Cunningham, Mary D. Davis, Charlotte G. Garrison, Ernest Groves, Sidonie M.

Gruenberg, Ruth Haefner, Francis A. Hungerford, Harriet Johnson,

H. E. Jones, Grace Langdon, Elizabeth Lord, Lawson Lowrey,

Elizabeth Moore, Mary Murphy, Winifred Rand, Mae Raymond, Mandel Sherman, G. S. Stevenson, Mary Sweeney,

Nell B. Taylor, Flora Thurston, Leona Vincent, Beth

Wellman, C. A. Wilson, and Elizabeth Woods

The Twenty-Eighth Yearbook is the most significant contribution that has been made to the literature of preschool and parental education. A request for a yearbook in this field was made to the National Society for the Study of Education in February, 1925, and the committee was formally organized in October, 1925. Dr. Lois Hayden Meek, Educational Secretary for the American Association of University Women, was appointed chairman and the other members of the committee were chosen to represent various aspects of preschool and parental education; Dr. Bird T. Baldwin and Dr. Arnold Gesell,

research in child development; Professor Patty Smith Hill, education of young children; Miss Edna N. White, home economics aspect of preschool and parental education; Dr. Helen T. Woolley, psychological aspects of personality problems of childhood; Dr. Douglas Thom, the psychiatric aspect of child problems. A generous grant from the Laura Spelman Rockefeller Memorial, supplementing the appropriation of the National Society for the Study of Education, made possible the work of the Committee.

The seven members of the Committee and the twenty-nine contributors associated with them, have assembled and presented in the Yearbook a most comprehensive survey of the present status of preschool and parental education. In setting forth the Committee's purpose for the Yearbook, Dr. Meek says in the introduction: "The Committee hopes that the present yearbook will help to show the trends of the movement, to point out the need for carefully trained personnel, to emphasize the varied influences of home, school and community life, and to focus attention on the total aspect of child development—physical, emotional and social, as well as intellectual." She further states that the Committee worked and thought together on practically every part of the book in an effort to unify the contributions of the many who supplied the wealth of data, and to present the material concerning the education of children and parents from a point of view which would integrate a movement participated in by many groups with varying objectives and backgrounds.

Throughout the book the term preschool refers "to the whole period of infancy and early childhood, from birth up to elementary school entrance at the age of six or seven." The term parental education is used "in its broadest sense to include all methods and devices of adult education intended to assist parents in the understanding and care of their children."

The book is divided into two parts—Part I on organization and development of preschool and parental education, and Part II on research and method in this field. In Part I, the history of the movement is given, including a brief discussion of the beginnings of the kindergarten, the Montessori school, the nursery school, child health centers, play schools and child study groups. The following general considerations underlying preschool and parental education are stressed: the importance of the preschool years from the standpoint of growth and development, the influence of home and parents, the need of supplementary educational agencies and fundamentally of educating parents themselves. The present organization of education for preschool children is given in considerable detail covering the family as an agency, day nurseries, maternity and infant welfare centers, the clinics, nursery schools and kindergartens. Part II also includes a survey of current programs in parental education and experiments in preparental training, and indicates what is being done in professional training for research and instruction in preschool education, in the professional training of nursery school teachers, and in the training of leaders in parental education.

Part II, on research and method, opens with research activities in the field of child development, indicating the present status of research in child development and citing the outstanding studies of motor, language, intellectual, emotional and social development and of physical growth. A section follows on educating preschool children, with a thorough discussion of child activities,



including those leading to the establishment of routine habits, play, art experiences, language and literature and social development. Provision for individual differences and the records of young children are also introduced. A concluding section deals with methods and materials for the education of parents and of practical ways of educating parents and teachers to the value of mental hygiene.

The Twenty-Eighth Yearbook is a very valuable source book in the field of preschool and parental education—a book which administrators, supervisors, teachers and parents interested in general or specialized education for the preschool child or the parent will find an indispensable addition to their libraries.

## VOLUME FIFTEEN

TWENTY-NINTH YEARBOOK, PARTS I AND II (1930)

REPORT OF THE SOCIETY'S COMMITTEE ON ARITHMETIC

W. A. Brownell, B. R. Buckingham, G. T. Buswell, C. E. Greene, R. L. West,  
F. B. Knight, (Chairman)

Assisted by

E. A. Beito, J. C. Brown, L. J. Brueckner, J. R. Clark, W. F. Dearborn,  
Arthur Edwards, H. L. Harap, Ernest Horn, C. H. Judd, Fred Kelly,

L. A. King, R. H. Lane, Josephine MacLatchy, C. R. Mead, R. L.

Morton, Elma A. Neal, G. M. Norem, W. J. Osburn, J. R.

Overman, Isidoro Panlasigui, Harriet E. Peet, F. G.

Pickell, A. C. Repp, G. M. Ruch, C. W. Stone,

Florence Stratemeyer, and C. W. Washburne

The Twenty-Ninth Yearbook of the National Society for the Study of Education was prepared by the Society's committee on arithmetic, of which F. B. Knight is chairman, and the membership includes W. A. Brownell, B. R. Buckingham, G. T. Buswell, C. E. Greene, and R. L. West. Thirty other active members of the Society assisted the committee in the preparation of this 700 page report, or acted as a special reviewing committee, whose critique of the work as a whole appears at the end of the Yearbook.

The Twenty-Ninth Yearbook is divided into two parts. Part I, *Some Aspects of Modern Thought on Arithmetic*, contains an article on "The Social Value of Arithmetic," by B. R. Buckingham; one on "The Arithmetic Curriculum," by West, Greene, and Brownell; on "Some Considerations of Method," by F. B. Knight; on "Testing and Diagnosis," by Greene and Buswell; and on "The Training of Teachers," by B. R. Buckingham.

Part II, *Research in Arithmetic*, contains a study of techniques by W. A. Brownell, a critical survey of previous research in arithmetic, by G. T. Buswell, and reports of eleven hitherto unpublished studies on various pertinent topics. The Appendix contains a *Critique of the Yearbook* by the reviewing committee, Leo J. Brueckner, chairman.



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